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The Journal of THE AMERICAN DIETETIC ASSOCIATION

VOL. VI DECEMBER, 1930 NO. 3

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To the

Chief Dietitian

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PLACEMENT
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25 E. WASHINGTON ST., CHICAGO, ILLINOIS
THE AMERICAN DIETETIC ASSOCIATION

Vol. VI, No. 3 DECEMBER, 1930

The Journal of

The American Dietetic Association

PRESIDENT'S ADDRESS*

ANNA E. BOLLER

With this annual meeting, the thirteenth year of our Association is brought to a close, and at this time it is my privilege to report to the members the progress of the year. Last year we had hoped that the revision of our Constitution was complete. However, numerous changes were found necessary this year. For instance, we have asked you to revise the Constitution to eliminate the two-year training period prior to October 1, 1926. Many people who have had their training prior to 1926, misinterpret the requirement for active membership. They believe that two year's training (if received prior to 1926) is all that is needed for an active member and are unhappy over the decision of the Membership Committee when they are accepted as associate members. This two-year training requirement was intended merely for those who *applied before* 1926.

Office routine will be greatly simplified by having the junior members pay the regular membership fee of five dollars. This will avoid additional billing and a great deal of explanatory correspondence.

Our affiliation program has reached the point where it seems advisable to drop local association affiliation and have only state associations affiliate with ours. We are asking, therefore, to have this change made in the Constitution. Certain articles were shifted to other positions in the Constitution, merely because they seemed out of place in their old positions. We have also added several clauses in regard to the resignation and transfer of members. The Organization Committee and the Association History Committee have been added to the list of standing committees, as it was felt that both of these activities should be carried

*Presented before the Thirteenth Annual Convention of the American Dietetic Association, September 8, 1930.

on every year, and that the simplest way of securing their continuity would be to provide for them in the Constitution.

In the past, the members of the Nominating Committee have been nominated from the floor at the end of the annual business meeting. It seemed advisable to give a little more careful thought to the selection of these five members, and enable the members as a whole to have a definite voice in their selection. For this reason, the Revision Committee is presenting to you an amendment which provides that the Nominating Committee submit on their regular ballot a list of seven active members, from which the five receiving the largest number of votes will constitute the Nominating Committee for the following year.

We now have a Placement Bureau Board which should bring greater continuity into the work of the Bureau, and serve as an advisory group to the director.

The work of the Association has increased so rapidly that it has seemed advisable to incorporate as a Board another of our activities, the Investigation and Approval Committee, so that work may be carried on consecutively year after year. When one travels around the country, one is impressed with the influence which our Association has in improving the quality of commercial products and standards of advertising. With this in mind, and realizing the possibilities for the future, an amendment providing for an Investigation Board has been included in the revisions.

The President of the Association serves as Chairman of the Journal and Placement Bureau Boards; the responsibility of another chairmanship would add greatly to her duties. The suggestion has therefore been made that the senior member of this Investigation Board serve as its Chairman, and the President be a member ex-officio.

May I call your attention to one of the outstanding activities in the Association for this year, the preparation of "Standardized Outlines for Courses in Dietetics for Student Nurses," which were prepared by a subcommittee on Education? No doubt you have all seen these and realized the vast amount of time and effort required for their preparation. I would like to thank this Committee, three of whom met at their own expense last Spring to complete this excellent work, namely, Dorothy Hacker, Dorothy Steward Waller and Sister Victor.

A word about the business office seems timely. As you will recall, Mrs. Richmond's resignation as business manager was presented to the Association last Fall. However, we were very fortunate in finding Miss Dorothy Lenfest, our present business manager, who came to us in February. She has done commendable work for which we should all

be truly grateful. With her excellent background of business training and experience along several lines, she has been able to see the needs of our office and to reorganize completely certain activities. A new record system, which combined in one file the information which had formerly been carried in three or four files, is in operation.

Other activities, carried on with equipment and methods which were satisfactory in the early years of our business office, when our membership was one-third of our present number and our office force consisted of a part-time secretary and part-time stenographer, have been completely reorganized. The business office staff now consists of four full-time people.

The Organization book has been developed during the year by Miss Kalsem. The need for it has long been recognized, and we are grateful to her for having arranged it in such a permanent and useable form.

The Affiliation Committee has done excellent work, in that they have created a great deal of enthusiasm throughout the country for state organization, both by correspondence and personal contact. Through this strengthening of State and National affiliations, our Organization will grow, both in numbers and in power.

Last year our contribution to the Memorial for women who served in the World War was presented. Many have been enthusiastic over this, and we have reserved tentatively a column in the Hall of Service.

I know that you will be pleased with the new membership routine which was adopted at the Executive Committee meeting in March. Now most of the investigation work is done by the business office, and we find that it is speeding up action on applications received.

In Government hospitals, the Reclassification Committee, appointed by Congress to study conditions and make recommendations in regard to civil service employees, is considering a change in the classification of the dietitian. Because of this, a special committee was appointed, to investigate the matter this year, with Dr. Lillian Storms as Chairman. During two recent visits to Washington it was my privilege to meet the heads of the four Government Medical services, the Assistant Director of the Reclassification Board, and a number of others who were vitally interested in this problem. They were very grateful to the Association for our efforts to be of assistance in solving the problem of the status of the dietitian in Government Service, and it is with this in mind that we want to send a formal resolution to the Reclassification Board, taking a definite stand with regard to the status of the dietitian.

Inasmuch as the report of this Committee will go before Congress in the near future, it was thought advisable to apply for admission to the Women's Joint Congressional Committee, who could watch the progress of the bill through the various committees and the houses of Congress. This application will be acted upon this Fall. The Executive Committee appointed Mary Lindsley as delegate and Ruth Atwater as alternate to represent our Association on the Committee, as they are in Washington and are familiar with methods of legislation.

The Executive Committee has recommended the appointment of a special Committee on Legislation, who will be helpful to our delegate and alternate in bringing to the attention of the Association all matters with which we should be concerned. This Committee will have power to take action through our representatives on the Women's Joint Committee. It is also the recommendation of the Executive Committee that this be made a standing Committee next year.

Very closely allied with this comes the matter of the definition of the word "dietitian." A special Committee was appointed during the past year to study source material with reference to orthography and definitions. Results were greatly varied, ranging from "dieter" to "dietitian," —the latter form, in two cases, spoken of as rare. It seemed advisable to give careful consideration of the matter at this meeting and to adopt a definite spelling and a carefully worded definition. We thus hope to establish in the minds of the public one term covering our profession.

In closing this report on our year's work, I should like to thank all who have worked so diligently for the past two years. I have been constantly aware that all the accomplishments of these two years have been through coördination of efforts; that the growth, which has been very marked, is due to these efforts. It has been a great satisfaction to your President that the working units have been so closely united in purpose and that all aims have been focused on the one goal of bringing the profession of dietetics to the highest possible standard, and of making each member of the profession worthy of the name "dietitian."

DIET AND COMMON SENSE

T. SWANN HARDING

As I mature and thereby attain years of far more accentuated indiscretion I find it increasingly difficult to be properly supercilious about the notions of the ancients and the pseudo-science of modern faddists and quacks. Whether this deplorable state of ethical dyspepsia has been induced by an immoderate indulgence in yeast vitamin-B-complex tablets I cannot say. But try as I may I find it very difficult to sneer effectually at the poetasters of science at a time when science itself seems in possession of more facts than it can conveniently digest, and more separate items of information than it has philosophical grasp to compile into useful systems. It may not appear so, but I am really discussing human diet. It offers as good an example as any and I happen to know something—a very little— about the subject.

Writing in 1584 in his *Haven of Health*, Thomas Cogan, M.D., made the following remarks:

"Milk is blood twice concocted. . . . . A windie food, but can be made less windie if boyled. . . . . Everie offence in dyet is wont to be more greivous on a slender dyet, than a full dyet, and for the same cause, a very spare, precise and exquisite dyet is not so sure for them which be in ill health, because the breaking thereof is the more greivous. . . . . When to eat is best told by hunger; hunger riseth by contractions of the veynes, proceeding from the mouth to the stomach, for want of meate, for as Leonard Fuchsus teacheth, 'True hunger ariseth of the feeling of want when the veines do draw from the stomack as if they did milke it or sucke it.' "

That is the kind of stuff which formerly produced hearty laughter in me. I laugh somewhat more diffidently and timidly now. I have a vision of Gluyas Williams' gentleman in Child's, completely stampeding the place in an effort to get his calories well balanced. I find in me a certain sneaking admiration for a doctor who, like George Washington, was sufficiently brave to spell the same word differently in another paragraph. Finally, if memory serves me correctly, I was beating a figurative breast in *Harpers* last August, exclaiming that we should eat when we are hungry, while I have also, in medical journals, brayed loudly about the excellence of milk, especially boiled.

At least, so far as proteins are concerned, it is also held today that a full is better than a slender "dyet" and to err slightly on the side of excess is considered better technic than to deny oneself. And, speaking of the historic past, it may be of interest to recall that in a report entitled *Nutritive Properties of Substances Which Contain Nitrogen*, Magendie, 1816, showed that dogs could not live upon fats, sugar, and water, but must have some form of nitrogen in their food. Moreover, when his dogs died, his careful description of their autopsy indicates that they showed marked signs of xerophthalmia, an eye disease caused by vitamin deficiency. Unfortunately for us of today, however, Magendie prevented this untoward condition by feeding such dogs olive oil, but could not prevent it with butter, results which exactly reverse modern work on vitamin A and its lack. We would better, therefore, dismiss him as a producer of unfortunate paradoxes and hop back a few years.

Turning now to the times of Shakespeare, Bacon, Milton, and Dryden, we discover that Tobias Venner flourished, and that this doctor of "physic" wrote a famous book entitled *Via Recta ad vitam Longam*, about 1620. In it he declared that the finest quality bread was "more curious than judicious," which is exactly how I should describe the more sawdust-like whole wheat loaves of my own day; that he had a subconscious prescience of vitamin deficiency *il va sans dire*. Dr. Venner also vigorously condemned plain water drinking. In fact—we may as well be honest, letting jail sentences fall where they will—he recommended the following breakfast in enthusiastic terms: Two poached eggs, bread, butter and *claret*! He also said: "When eating do not cogitate but chew."

In the course of a lifetime devoted to minor misdemeanors and lesser infractions of ethical codes, I have myself written somewhat on human diet. I have spent a six-year sentence in a laboratory of biological chemistry working on nutrition problems. I have spent ten years accumulating reference material about nutrition, collecting, filing, and trying diligently to digest it. I have at length attained a giddy height of knowledge whereon I regularly take six vitamin-yeast tablets every day on the theory that I need vitamin B, and at a time when vitamin B has just been split into several hypothetical components and is perhaps less understood than it ever has been. My presumption is that I get a sort of metabolic cellular stimulus by taking the tablets. At worst, I probably do myself very little harm. The point is that I am exceedingly skeptical about the tablets, quite as skeptical as I am about various sure systems of eating designed to make you what God intended you to be in His more confident and optimistic moments.

Yet every time I write or lecture on nutrition and tell how great a dubiety ten years of study have aroused in me, the same thing happens. Kindly ladies and gentlemen in the most unlikely places arise or write to me, unsolicitied, and recommend diets which cured them of the most dangerous pathological conditions. These diets are repeatedly in direct contradiction for the very self-same ailment, but my advisers, I am firmly convinced, are honest and sincere in their beliefs and I know them to be quite willing to advise everyone to try their diets and have life more abundantly. The climax was probably reached in a curious little booklet ornamented with the god Mercury and describing a "school of the chemistry of life" which reached me from what Mr. Mencken's terms the "haven of the half-baked"—California.

Here I learn that there is but one universal substance and that it is the Absolute-Father-Mother-God. Also that the body is nourished solely by the salts in cooked food, but that it becomes clogged with cooked vitamin. Since vitamins are so elusive that scientists seem unable to nail them down, this seems puzzling, but it appears that this diet system is based upon astro-chemical analysis. If you will send your birth date, and correct address, and *$10 cash with order* you can begin to understand the chemical constitution of your body and to lay the foundation for a "greater tabernacle," if you can pardon a mixture of physiology and architecture.

"The new wine of the Acquarian age is appearing (high cosmic vibrations), the water of life offered to all that we may drink freely and live forever. . . . . This system is figured mathematically, astrologically, chemically and physiologically. . . . . Bio-plasma is a combination of the 12 basic mineral elements or inorganic salts of the blood, formed into a celloid. Everyone is born deficient in from 6 to 8 of the 12 basic blood elements." Get an astro-biochemical examination, find out which minerals you lack, take the tablets and become part of "the new race in the morning of a new age." Somehow, the gentlemen who wrote in the sixteenth and seventeenth centuries do not seem so wide of the scientific mark after reading this modern pseudo-science.

For we live in a day when advertisers glibly tell us that green tea is loaded with vitamin C, whereas the most careful laboratory investigation of the subject discloses the fact that green tea quite naturally contains no antiscorbutic vitamin C, it having been so well dried in processing. On the other hand, Dr. P. G. Shipley of Johns Hopkins tells us (*Journal of the American Dietetic Association*, June, 1929):

As a matter of fact, our great, great grandfathers who practiced during the eighteenth century knew very nearly everything we know today about scurvy except the terminology which is in vogue at present. The writer, at the risk of being accused of harboring reactionary sentiments, is sometimes inclined to doubt that medicine is entirely indebted to modern laboratory investigation for its progress, or for the sum total of the still unfortunately scanty collection of hard facts of which it is possessed. The medicine of the past was often in error and frequently ridiculous, but modern medicine includes much which will be shown to be wrong and will serve as the butt for many a jest in the future.

Nutrition is an unfinished science. All science is unfinished. New facts are being garnered every day. There is a natural tendency for the man who has discovered a few new and interesting facts to grow so enthusiastic that he thinks they are more important than anything else in the science as a whole. He forgets that all discoveries of today are built upon the discoveries of the past. He forgets that a chemical patent is essentially unfair in so far as it gives the last investigator, who pushed the thing finally over the top, more credit than it does the previous painstaking workers without whose efforts he could have done nothing.

The general social structure at any given era determines the scientific discoveries that will be made in nutrition, or in any other sphere, in that era. Individual discoverers are of subsidiary importance. Furthermore, for various reasons that we need not examine here, there is a constant tendency for investigators to rush to print with facts and ideas before they have been thought through, and before the research itself has been pursued sufficiently long. The rush and hurry of modern life has, in a measure, infected science itself. The breathless discovery of new facts, with the consequent overemphasis of these facts, goes on continually, while we seem to lack time to deliberate about the data and to connect them up in their orderly places with the body of knowledge already available. If scientists themselves tend thus to over-emphasize the new, and to give it an importance which is out of proportion to its real, permanent value, it is quite natural that physicians and laymen should do this.

That even hospitals are badly infected today with diet faddery became apparent in an address delivered by Walter C. Alvarez, M.D., before the Minnesota Hospital Association in Minneapolis, May 28, 1928. After recounting the death of a patient with colonic cancer, and attributing this fatality directly to a piece of lettuce leaf from the hospital diet, whereas he had directed the hospital to give his patient a smooth, low-residue, non-roughage diet, Alvarez went on to demonstrate that it was

almost impossible these days to prevent hospital patients from getting such harsh foods. A few hospitals went to the other extreme and gave soft diets almost exclusively. Alvarez argued that the penalty should suit the crime and the diet the patient; also that most people can be deprived temporarily of vitamins and roughage without serious disaster. "It has been stated also by physiologists that the hardest work the stomach and bowel have to do is the reduction of raw, cellulose-containing food to a liquid chyme, which can be acted on by the digestive juices. Cellulose is the most difficult substance man has to digest because there is no ferment in the digestive tract to handle it."

Alvarez also had these wholesome words of wisdom to impart:

> The research on dietetics which in recent years has yielded such interesting discoveries, is still in progress. The results have not yet been mentally digested and their importance in human dietetics cannot yet be fully appraised. Certain features of the subject have struck the popular fancy and have been played up prominently to the exclusion of others equally important. Much confusion has been wrought by the tremendous educative campaign waged in the public press by overenthusiastic but insufficiently educated persons, some honestly trying to help humanity, some trying to sell something, some thrilling over their own verbosity, and others a little "cracked." The pressure of opinion produced by this campaign for vitamins, roughage, greens, and raw food, is so great that it can be withstood only by a determined and thoughtful person well supplied with facts. Unfortunately some of the dietitians I have met were neither thoughtful nor well supplied with facts. They had drifted with the current and had apparently forgotten that in prescribing a diet one should occasionally think of the factor of digestibility. Other dietitians, of course, are sensible, well trained and able women who deplore the present stampede for rabbit food as much as I do. . . . . My main grievance is that in hundreds of cases, particularly those in which operations have recently been performed on the digestive tract of asthenics with weak digestions, much flatulence and distress are produced by the giving of such food as the patient, even at his or her very best, could not digest with comfort. Time and again in years past I have called on a patient just after recovering from cholecystectomy or gastro-enterostomy and have found on the luncheon tray salad, raw fruit, bran muffins, and, I need hardly add, spinach. The surgeon had said to the nurse, "The patient may now eat," and a full tray had been brought. Perhaps the fault was the surgeon's? But unfortunately surgeons are often busy men; their minds are concerned with their own technical problems, and rarely have I met with one skilled in dietetics or willing to bother himself about a detail in the matter of food prescription.

This eases us rather painlessly into the subject of health foods generally, brans and irradiated cereals, mineral waters and mayonnaise full of mineral oil—and all the other dozens of products and preparations the authors of *Middletown* found timid and fearful Americans only too willing to buy in order to keep them well and fit. I know what this is. Am I not myself taking those vitamin tablets for a tired feeling which Alvarez constantly reminds me cannot be cured unless I decide to use my brains as a plains' Indian years ago used his? For, he insisted to me, we today constantly heckle and perplex our minds with complex problems, thus causing mental and physical fatigue, all forgetful of the fact that human minds were used for eons only occasionally, and then upon very simple problems. But we all hope we can take something that will make us feel better. Certainly manufacturers hope we will do this and not only good-housekeeping institutes but nutrition councils of physicians now stand ready to certify to the excellence of such medicated foods, to permit them to advertise this certification far and wide, and to recommend themselves indiscriminately to the well and the ill as just the thing needed to overcome that "loggy" feeling.

As the United States Food and Drug Administration reminded us about a year ago, the labels on such products lead us to believe that our ordinary diet is sorely deficient in vitamins and minerals, and that we all absolutely need "health foods." The Administration has no objection to the sale of such "wholesome" foods as happen really to be wholesome; it does deplore the constant effort to create an impression that we all need some dietary supplement in order to avoid nutritional debacles.

So-called "health-giving" biscuits, foods, and waters, are not only a waste of money if purchased for their curative properties, but are responsible for a more serious loss because their use is relied upon as a substitute for appropriate corrective measures, as a proper diet, exercise and sunshine.

The tendency to exaggerate the life-giving qualities of certain breakfast foods was deplored by W. G. Campbell, head of the Food and Drug Administration, who said also that many such foods were really drugs, should be prescribed and used as carefully as drugs, and were, like certain irradiated foods and brans, decidedly contraindicated, and therefore certainly harmful, in many individual cases. The Administration paid particular attention to the enthusiastic claims of irradiated cereals, some of which have since been certified by the American Medical Association Committee on Foods. These products do develop antirachitic properties when exposed to ultra violet rays, but ordinary sunshine is rich in such

rays and provides them in abundance, hence "the use of a drugged food is needless to persons getting plenty of sunshine."

In October, 1929, The American Medical Association announced a Committee on Foods which would pass upon food products, would accept them if they met certain requirements, and give them a clean bill of health. "Following the acceptance of a product by the Committee on Foods and so long as the product is continued in good standing, the manufacturer of any product is authorized to affix to that product as a portion of the label and to use in advertising the insignia adopted by the Committee on Foods, as suitable for identifying an accepted product."

That scientists on the editorial staff of the *Journal of the American Medical Association* itself fully realize the damage irradiated and other foods may do if used indiscriminately, is apparent from comments on a Public Health Report made therein about four months before the Food Committee started to function. I quote a few sentences:

> Already various foods, such as cereals and milk, are being irradiated prior to sale, and the "captured sunlight" claims will doubtless be pushed to the extreme of the advertiser's ingenuity. The reports merely attempt a beginning to indicate the limits of safety particularly in anticipation of the careless clinical use of such irradiated products. As M. I. Smith and E. Elvove state with respect to activated ergosterol, it is doubtless a useful drug and one endowed with great potency, but not without possible harm in the hands of the unsuspecting. Probably this is true also, they add, in the haphazard consumption of foodstuffs that have been subjected to the action of ultra-violet rays. Reyher and Walkhoff have recently reported pathologic changes in guinea-pigs and mice, similar to those observed in rabbits, following the oral administration of irradiated cow's milk and irradiated yeast yolk. The warning of the United States Public Health Service investigators seems sane at this time, when they remark: "Of course we would not be understood as deprecating the therapeutic use of irradiated ergosterol, but would rather call attention to the possible harm that might result from too large doses."

It is particulary unfortunate, then, that a nutrition committee sponsored by physicians recommends for general use irradiated food products which should be restricted at present to clinical experimentation. As Ernest E. Irons, M.D., wrote in the *Journal of the American Medical Association* for November, 1929, too many physicians have adopted a blind faith in dietetic therapy.

> Frequently I am consulted by patients who have been advised to eliminate carbohydrates and then fats, and finally to reduce their protein intake. There

is very little left. Diet lists are becoming more and more complicated and I often wonder whether common sense is not frequently replaced by faddism. The discovery of vitamins has been of tremendous importance in the understanding and cure of deficiency diseases. We often forget, however, the circumstances under which these dietary deficiencies produce symptoms requiring correction.

A special antiscorbutic vitamin preparation is entirely unnecessary for a healthy person on a normal diet, though on restricted medical diets it is often wise to give substances rich in vitamins. Not only that, but, as we shall see later, there is some evidence to show that dosing up too heavily on one vitamin may throw the organism into what is called a state of vitamin imbalance and produce evil results because some other vitamin is neglected.

The diversified diet of the average home probably affords all vitamins necessary to health, and there is no evidence that the giving of an excess of vitamins is beneficial. A glass of milk is more effective and less expensive than a dose of vitamins. . . . . There is a wide gap between scientific demonstration and commercial exploitation.

W. McKim Marriott, M.D., spoke very wisely on medicinal foods before the Annual Congress on Medical Education, Medical Licensure, and Hospitals, at Chicago, February 17, 1930. He first attacked food fakers who distort scientific values and broadcast misinformation. He showed that, in general, practically all special medicinal foods could be easily and most economically replaced with ordinary articles of diet. He continued:

Irradiated foods contain more vitamin D than those which have not been irradiated. The amounts present, however, are not large, the vitamin D content of a whole package of some irradiated foods being not much more than that of one or two teaspoonfuls of cod liver oil. . . . . Despite advertising statements of certain citrus fruit growers, acidosis is a rare condition and there is no good evidence that the regular taking of large amounts of alkaline ash foods is of any especial benefit. . . . . We thus see that there are legitimate uses for proprietary and medicinal foods in the hospital. It is also evident that no results may be obtained from these foods which may not be obtained from ordinary non-proprietray foods, if especially prepared to meet specific indications. . . . . The chief objections to proprietary foods are that patients may come to feel that it is essential for them to eat some special foods, often very expensive ones, in order to maintain health; that the composition of these foods is often unknown, and that they may be marketed with unwarranted claims.

Such claims, it should be said, have been reduced to a minimum, in so far as package labels are concerned—and that is as far as the Food Law goes —by activities of the United States Food and Drug Administration.

Certain diet crazes are well known. It is also true that certain men with no training in nutrition whatever earn good livings by misinforming the public about food values over the radio and in the tabloids. The major whole wheat craze might be mentioned as typical. What has science to say here? Hauge and Beadle definitely showed in the March, 1929, *Journal of Home Economics* that whole wheat bread is superior to white bread as a source of vitamin G, of protein, and of minerals. But they very specifically said in the same article that only if bread constituted an unduly large proportion of the diet did these findings become practically important and that "the dietary habits of the American people are such that any deficiencies of one food item, as bread, may be amply supplemented by other foods—eggs, dairy products, and vegetables." Not only that, but bakers and housewives always improve the value of white bread by the addition of fat and milk and it can be quite safely and advantageously eaten in the ordinary diet.

Actually, two generous slices of whole wheat bread would supply all the roughage an average citizen needed daily; nor should cereals be looked upon as a dominant source of vitamins. Bran not only resists digestion, it can be very harmful to many people. The choice may safely be left to individual preferences and tastes. Children, as certain British investigators remark, are often forced to eat whole wheat bread by parents who cannot stomach it themselves, yet the young are particularly intolerant of high cellulose diets, and brown bread is so irritating to many of them as to cause ulcerative colitis if the error is persistedin with sufficient parental fortitude. If bread were to be made into a perfect food it would no longer be recognizable as bread. It would be something else entirely, and rather a monstrosity at that. From an economic standpoint the question may be dismissed by this quotation from Volume V, No. 4, *Wheat Studies* of the Food Research Institute:

> To consume our wheat as whole wheat bread instead of white bread would make no essential contribution to the national health, and would not be in the interest of national economy, at least if the present American diet continues to prevail. Protein, minerals, vitamins, and roughage are adequately available in other foodstuffs. Nutritional security in the diet is to be sought in the milk supply; and perhaps more than an eighth of the milk supply is secured from mill offals of wheat.

It should be said here, just by way of clarification, that there can really be no such thing as whole wheat flour. Flour is a bolted and a refined product. Whole wheat is not flour. Ground whole wheat is not flour, but meal. Bread can be made of meal—e.g. corn bread—as well as of flour and there can be whole wheat bread. The fine, soft powder separated from ground wheat by bolting is flour. The fact that coarse whole wheat products can be exceedingly injurious where contraindicated is evidenced by minor epidemics of colitis, with occasional perforated ulcers, in regions addicted with particular credulity to the tirades of diet quacks interested in selling whole wheat products for their clients.

The inimical qualities of sulfured peaches and the dastardly conduct of the United States Food and Drug Administration officials in permitting their sale is another favorite text of the know-nothing school of nutrition homilists. It is, however, a matter of scientific fact that sulfured peach products retain their full antiscorbutic vitamin C content as fresh fruit, whereas unsulfured, sun-dried, dehydrated peaches retain no detectable quantities of vitamin C whatever. (Morgan and Field, *Journal of Biological Chemistry*, June, 1929.) The same has more recently been found to hold for prunes and apricots. As a matter of fact, sulfured, dried peaches rank antiscorbutically with orange juice and raw tomatoes, and the unsulfured dried peaches rank nowhere. As the authors say, "In view of the long disputed question as to the possibly deleterious effects of sulfurous acid in dried fruits, these findings are somewhat surprising." The Food Law originally decided to permit the presence of 350 milligrams per kilogram of sulfur dioxide in such fruits, as a maximum, and this may generally be regarded as harmless; indeed, the Referee Board of the Department of Agriculture found much larger quantities harmless to human beings. Hungary, Germany and Czechoslovakia allow 1,250, England 2,000, Canada 2,500, and New York State 2,000 milligrams per kilogram—all far more generous allowances and still presumably harmless.

The raw food craze comes to mind. The first gentleman I met who was infected with this bug had retired to a sanitarium for the mildly balmy to spend the rest of his days. Prof. H. Strauss discussed this subject in Berlin last January about as intelligently as it has recently been discussed. The advantages of raw foods lie mainly in their unchanged mineral and vitamin content, both of which are menaced by poor cooking. However, if it be asked specifically just what modern diseases of adults are directly due to the withdrawal of minerals and vitamins from foods by cooking, the answer is far to seek. Furthermore, new methods of cooking easily

retain these constituents while they demonstrably make most vegetables far more digestible than if eaten raw. Raw foods are to be recommended as a reasonably proportionate part of a mixed diet and only when used in this way are they wholesome and valuable.

Alvarez has spoken intelligently on the vitamin craze. Few physicians in this country ever come across cases of beriberi, xerophthalmia, or scurvy. The diseased conditions among adults supposed to exist by reason of vitamin deficiency are elusive and unusual, he says. If vitamins must be imbibed to excess this can be carried out by a liberal consumption of milk, butter, yeast, and orange juice, without overburdening the body with bulky cellular material. In the *Journal of the American Dietetic Association*, December, 1929, Alvarez described the craze for vitamins and vegetables and the tendency to disregard the factor of digestibility.

> For twenty years, in consultant practice, I have been seeing unusual cases, and yet, so far as I know, I have seen but one case of beriberi, in a Chinese, but one case of scurvy, in a Canadian trapper, and one case of pellagra, in a man who had been too long on an ulcer diet. During this time I have met many patients who had lived for months or years, apparently unharmed, on freakish, restricted diets which one would think would have ruined the health of any self-respecting laboratory rat.

He mentions one such case of a woman placed by him on a restricted diet for a short while in the attempt to combat some annoying symptoms. The diet consisted only of meat, rice, butter, sugar and jello, but the woman did not report back for two months because, she explained, she had been so completely relieved she had no desire whatever to enlarge the diet. So far as he could see, she was unharmed. Alvarez is not trying to prove that vitamins are unnecessary or that green foods are undesirable in every diet. He merely suggests that doctors cease riding hobbies too hard and that dietitians do likewise. He emphasizes these facts:

> First, that the mechanical factors of digestion are of extreme importance; second, that the consistence and cellulose content of the food is often of much greater importance than its vitamin content; and third, that we do not have to concern ourselves about vitamins in diets designed for patients with transient illnesses.

In this connection Blunt and Cowan conclude, after a complete survey of the literature, that the withdrawal of vitamin D from the diet of adult humans and lower animals, even for very considerable periods, seems to

have no untoward effects. This, of course, concerns normal, nonpregnant and nonlactating animals only. Steenbock and his coworkers have shown that irradiated cereals act to protect animals against the occurrence of rickets, although it is a fact that irradiated ergosterol itself does not seem to have the antirachitic potency of cod liver oil. Much work remains to be done here before we reach a sound scientific basis. For one thing, it has not yet been definitely established that a lack of vitamin D is the sole factor causing rickets in growing animals. De Sanctis and Craig suggest, as a result of recent work, that irradiated ergosterol given in doses recommended by the manufactuers is far less effective than cod liver oil though twice as much vitamin D was apparently used from this source. They say that this probably indicates the fact that some factor other than vitamin D deficiency controls the development of rickets.

Harris and Moore have shown in Great Britain that if animals get too much vitamin D while limited in their intake of the vitamin B complex, they may die, but that if the vitamin B complex is increased commensurately they live and flourish. Hence it appears that additions of cod liver oil, irradiated ergosterol, or concentrated vitamin D to the diet of an animal increases the organism's need for vitamin B. This in itself shows how little the interrelationships between vitamins are as yet understood scientifically, and how carefully irradiated health foods should be used.

The Fletcherizing fad, which still retains a rather notable vitality, was exhaustively examined by Harold H. G. Holck, who published the results of his study in a monograph entitled *Diet and Efficiency* (University of Chicago Press, 1929). In the preface, Dr. A. J. Carlson remarks on man's singular ability to live on most diverse diets and regrets that the energy and money expended upon diet faddery is not devoted to the support of valuable studies like Holck's. Holck followed four main rules: 1. to eat only when actually hungry; 2. to stop eating when satisfied; 3. to chew his food especially well; 4. to eat foods for which he had a craving and to omit foods which repelled him. He heroically persisted in this carefully controlled work for seventy-five weeks, during which time it required twice as long as usual to masticate 1,000 calories, while his food intake was at minimum and contained nearly the same percentage composition of fat, carbohydrate, and protein.

Fletcherizing decreased muscular endurance, typewriting accuracy, and basal metabolism. It had no significant effect whatever upon blood-pressure, pulse, oral temperature, sleeping time, mental multiplication or typewriting speed. It induced improvement in efficiency in solving chess problems and the body weight tended to increase. While the body

weight did not at any time fall below generally accepted standards for the subject's height and age, the decrease in neuro-muscular endurance indicates that Fletcherizing is really of little value to humans unless they desire to excel at chess, a rather limited sphere of activity at best and one seldom guaranteeing much of a livelihood. As Carlson says:

> The optimum diet for man is not yet known, but it is clear that average human health and vigor can be sustained by a wide variety of dietaries, provided these yield the necessary energy and the minimum of a few dietary essentials. . . . . Many voluntary dietary practices antedate scientific knowledge of the needs of human nutrition and the new ones appearing today are seldom based on sound physiology. This is not surprising, considering human ignorance and credulity, and the growing commercial propaganda of eat more of this and eat more of that.

Fasting for health, or starvation therapy, may be either a fad or a beneficent curative measure depending upon the mental balance of the individual concerned. A healthy, well-nourished man should withstand a fast of thirty to forty days without injury so long as his water intake is liberal. He will not, however, greatly affect his alimentary canal, as it still harbors its common flora at the end of the fast. Complete starvation fatigues, but is not painful; it lowers the blood pressure and induces mild acidosis. On a restricted food intake, diabetes, gout and obesity tend to improve, but nervous disorders, anemia and tuberculosis increase, as do also chronic diarrheas and digestive disorders. Complete starvation seems to benefit appendicitis, peritonitis, and ulcers; short fasts of two or three days will often help pneumonia, severe fevers, acute nephritis, chronic uremia, migraine, hyperthyroidism, local infections, phlebitis, rheumatism and rickets. A restriction of the food intake to from 1,000 to 1,300 calories is better than complete starvation and much safer as well. Except in cases of obesity clearly due to overeating and underexercise, starvation therapy is not a cure-all but merely an auxiliary to other measures. There is some evidence to show that the metabolism increases after a fast, as does the flow of gastric juice and the economy in food utilization; this condition persists for some time and explains many apparent benefits of the fast. In short, both the ills of overeating and the dangers of partial starvation are relative, and excess is always to be avoided.

Many minor points might be mentioned here *in extenso*, but must appear briefly. Thus some evidence has been presented to show that a diet of 3,500 calories daily, base-forming, low in salt, animal protein, and

carbohydrate, but very rich in fats and vitamins, helped certain tubercular patients. Cream, butter, cheese, egg yolk, nuts, lemon juice, cod liver oil, lettuce and other vegetables formed the greater part of this diet. The relation between diet and dental caries remains to be worked out, but that there is a very important relationship no one doubts; vitamins A and D, and calcium and phosphorus are all concerned here. Recent work from the State University of Iowa indicates that a diet rich in minerals and vitamins produced an arrest of dental caries in a group of children; this diet included cod liver oil, orange juice, tomato juice, milk, vegetables and fruits in abundance.

Donald Macomber believes that attention to proteins, fats, carbohydrates, vitamins A and D, and calcium and iron enables many women to circumvent sterility, and that the dietetic approach to this problem has been too much neglected. Langstroth, in a long article published in the *Journal of the American Medical Association* last year, hinted that a diet containing a high percentage of nonprotective foods conduces to the early development of the malignant degenerative diseases, and was at once quoted in the press as saying that vitamins would cure old age. He does think that Americans eat too many concentrated, nonprotective foods, and that adequate vitamins would help them elude high blood pressure, chronic gastro-intestinal difficulties, diabetes, and heart and kidney diseases much longer. By feeding seventy per cent in lieu the usual twelve per cent of milk, eggs, fruits and vegetables, he found he could mitigate the more distressing symptoms of degenerative disease and often effect some restoration. Sherman reports in the March, 1930, *Journal of Nutrition* that he increased the life span of rats by giving them a milk supplement to an otherwise "adequate" diet. "Hence it may be regarded as established beyond any reasonable doubt that, starting with a diet which is already clearly adequate, it may still be possible to induce a very significant improvement in longevity by enriching the diet in certain of its chemical factors."

All of this leaves us just where? Do we still eat too much meat, for instance? Meat consumption may decline, but meat accounts for about twenty-five per cent of our entire food bill. We spend more for meat than we do for clothing of all kinds in this best dressed nation of the world. We spend seven times as much for meat as for bread, five times as much as for public schools, ten times as much as for churches. Our annual meat bill would run the post office department for about ten years and build twice as many colleges and universities as we now have. Yet P. Boissonnade tells us, "In Frankfort, in the fifteenth century, the con-

sumption of meat was as high as one hundred and twenty-five to one hundred and fifty kilograms per head, as much as it was at the beginning of the nineteenth century. A traveller of this period remarks that in the Low Countries and England 'more folk die of too much eating and drinking than of the pains of hunger.'"

Perhaps this is still true today. If so, the habit has a powerful grip upon us. Certainly our meat consumption has recently been reduced, while at the very same time apparently reliable scientific work indicates that meat is not so dangerous to the blood pressure, arteries, and kidneys as was once supposed. It is an open question whether the vegetable-wise fad has not been carried too far.

How well do various classes of people actually select their food? When McKay of the Ohio Agricultural Experiment Station studied the food consumption of farm families in 1929, they were found to average individually 3,587 calories, 93 grams protein, 1.5 phosphorus, 1.1 calcium and 0.0163 iron daily. Although this indicates general adequacy, only forty-three per cent of the families received nutrients in sufficient amounts; in twenty-five per cent, the protein and the calcium were too low; many other families were low in calories or minerals. The tendency was to provide the protein and calcium needs first, then energy, then phosphorus, and lastly iron. Oddly enough, these farm people tended to consume milk, fruits and vegetables in inadequate amounts.

Edith Hawley, studying the nutritive value of foods served to college students for the United States Bureau of Home Economics in 1929, discovered that the students seemed to be consuming slightly more energy foods, a third more protein and from seven to twenty-six per cent more calcium, phosphorus and iron than were actually needed. She concluded that college students are, on the whole, receiving diets which meet their needs, with iron the factor in greatest danger of being furnished in insufficient amounts. Incidentally, the cost was not excessive, running from forty to forty-five cents per man per day on a 1926 price level.

Undoubtedly, many of us do not realize how a snack here and a bite there can run up our calories and overload us with food. The average 3,000 calories is not such a large amount, after all, and what a drug store sandwich of 200 calories, a fountain drink of 200 to 500 calories, or a cake of chocolate of 450 calories can do to a balanced diet is very striking. An ordinary serving of ice cream contains 500 calories and seven grams of protein, while a sundae will run 250 calories. It is the easiest thing in the world to accumulate 1,000 calories in this causal and painless manner, and the drinking of milk drinks can go far to produce an adipose tonnage,

destined later to fret us and reduce our index of mean pulchritude to an astonishing extent.

So far as vitamin concentrates and irradiated foods are concerned, we should do well to go slowly. In view of wide and wild variety of claims made by manufacturers for the vitamin B potency of yeast it is chastening to find Herbert M. Evans (as recently as the September, 1929, *Journal of Nutrition*) showing that wide variations in the results of tests made for vitamin B potency easily occur, unless the basic diet of the experimental animals is carefully controlled. Meat spares vitamin B; fat, replacing sucrose in the diet, makes the same amount of B go further; on fifty per cent fat, animals grow quite normally without vitamin B in their diet, and better performances take place when ten per cent fat replaces as much starch in the diet. This means that claims for vitamin B content in various products often mean little or nothing, since results due to other factors in the diet were attributed to the vitamin in yeast or the other products tested. Methods of testing products for their content of vitamins A and D are still in dispute, and various investigators proceed differently. A tremendous amount of patient, slow laboratory investigation must be carried on before we even begin to know where we are, in a truly scientific sense.

As a concluding fillip, I have decided first to take two more of my yeast-vitamin tablets and then quote a very interesting paragraph by Carl L. Alsberg, formerly chief of the United States Bureau of Chemistry, which was written in 1924, but manages to retain a great deal of verity even in 1930. Dr. Alsberg says:

> Apparently, for physiological reasons . . . . an adequate diet must contain a certain amount of animal products. A nation, then, might exist upon a diet on which it derived the greatest part of its energy from bread grains, as wheat and rye, and a considerable part of its maintenance requirements from such animal foodstuffs as milk. In addition, the diet would have to contain a certain amount of green vegetables and fruits. It would also include the meat of veal and old cows, the eggs and meat of self-supporting foraging hens, the product of the sea and inland waters, the mutton which is a byproduct of wool growing, and the meat of animals, like cattle and goats, produced upon ranges and other rough land. Obviously, such a diet can be produced with the minimum of labor and land. There is nothing on record to show that it is not wholesome. In general, its adoption would release much labor and much land. If we assume that both would be applied to the production of wealth, it is clear that the resulting national gain in wealth might be very great indeed. In any event, the result might well be that the earth would support a far greater population than is commonly believed possible.

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INTERPRETING NUTRITION TO INDUSTRY*

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In the Foreword to the recent book by Dr. Blunt and Miss Cowan, "Ultraviolet Light and Vitamin D in Nutrition," Dr. Fishbein refers to Mark Sullivan's "recapitulation of the progress of the last quarter century" in which scientific medicine is credited "with having done more for mankind than any other branch of human activities." "Preventive medicine," he pointed out, "had freed man from the fear of disease." Dr. Fishbein goes on to say that "there is, however, much more to preventive medicine than its negative aspect. Modern preventive medicine is constructive; it promises not only additional years of life, but additional years of healthfulness and of strength and of achievement."

Most medical departments in large industries have kept pace with these advancements. Where formerly their entire time was given to corrective work, prevention is now the key note. Greater efficiency, less absence, fewer accidents, happier dispositions, changed attitudes—are some of the results which benefit the employee as much as the employer.

No member of the American Dietetic Association questions the contribution that right diet makes to an improved mental and bodily condition. Therefore, it seems logical to find in one industry a nutritionist on the medical staff.

From studies made of the findings of the physical re-examinations of some three thousand employees and the causes of short-time absence due to illness, the Directors of the Personnel and Medical Departments of the Eastman Kodak Company decided that wrong diet was one of the major causes. As a result, a Nutrition Advisor became a member of the medical staff in 1922. This recognition by the physicians gave the work, from the first, a standing in the eyes of the employees. It meant, also, that the advisor had access to the files which contain the medical history of the employee from date of employment, including his physical examination on application for employment.

*Presented before the Thirteenth Annual Convention of the American Dietetic Association at Toronto, September 10, 1930.

Before discussing the way in which the work has been carried on, let us get a picture of the organization. In the city of Rochester, the Eastman Kodak Company has four separate units, three devoted to manufacture, the fourth to office work. In the largest manufacturing plant (Kodak Park) is the Research Laboratory. The twelve (or more) thousand employees live in widely scattered areas throughout the city and its environs. They are English-speaking men and women, the majority being native born. In education they range from those whose formal training terminated in the grades to those with the degree of doctor of philosophy.

The problem has been how to lead these men and women to see that an "improved diet" means "improved health," to have them take an intelligent interest in their food and food habits, and to convince them that there is a "clear distinction between 'adequate' and 'optimum' nutrition," as Dr. Blunt states it. A large order! But stimulating. How have we gone about trying to develop this "health consciousness?"

We have used three methods of approach—personal consultation, group work, and what might be termed "advertising" or "publicity."

In two of the four plants mentioned there are medical departments with resident physicians, medical specialists (part time), and nurses. The other two plants have dispensaries with nurses in charge and doctors on call. Over all is the Medical Director. Employees are urged to use the Medical Department freely, and to take advantage of all of its services. As a result, many call to see a doctor or nurse when only slightly indisposed, and if the examination reveals diet discrepancies, the patient may be referred to the Nutrition Advisor. It was in this way that the employees first learned of the nutrition work, and the custom is, of course, still followed. As time went on, it became known that such service was available, and soon employees came voluntarily to discuss their diets.

When the patient is brought into the office, his medical record comes too, if the doctor has not already explained the case. He is asked to give the history of his trouble and to tell of his food and health habits. After this, a diet is prescribed. We have certain outlines printed or mimeographed, but not one is given without adaptation. Psychology plays no small part in these interviews. One sometimes feels helpless before the complications presented. It often seems more a problem for the psychiatrist than the nutritionist.

Personal consultations are apparently the most effective way of teaching right diet habits, and for that reason time should be allotted for them.

They usually mean, however, that we are dealing with the corrective rather than the preventive side of our work Also, they definitely limit the number reached. Hence, we have in a sense combined the personal consultation with the group work.

In the re-examinations of the office people, during the winter of 1921–22, it was found that a group of the young women was definitely underweight and undernourished. For a time these were given permission to take a glass of milk during the forenoon and afternoon. Because no one had direct charge, the question of discipline arose, and in April the group was dismissed to await the arrival of the Nutrition Advisor in July.

The method of organizing this group has been the one followed, with slight modifications, with all others. First, the heads of departments were called on, the project explained, and their coöperation sought. We met with gratifying response, and proceeded at once to examine the medical record of each woman, to call her for consultation, to urge her to correct her diet where deficient, and to take a mid-morning and mid-afternoon lunch of a half pint of milk. Individual weight charts were kept, and from time to time each young woman was called for consultation. An exhibit of 100-calorie portions of common foods was shown and discussed during the time the young women drank their milk. In six months' time over 100 young women had been members of the group for a longer or shorter period, and we began weeding out those whose physical condition and weight had improved. At the end of the year we discontinued the group as such, but have always had a few men, as well as women, taking this extra nourishment upon the advice of doctor or nutrition advisor.

In 1927 we checked up on the women members of this first group who remained with the organization; there were fifty-one whom we surveyed to ascertain if they had kept their weight, and had improved physically.

Our next procedure, in a group way, was through correspondence. A "Health Coupon" was printed in our employees' magazine. This was to be cut, checked, and returned to the Nutrition Advisor. When it was received, the employee's medical record was examined and a letter written to him. In this letter a food record sheet was enclosed which asked for a three days' report, to be returned when filled out. A personal consultation was asked for in certain cases. About two hundred were interested in this form of health instruction.

At Kodak Park, where films are manufactured, there are three departments which employ many women, with matrons doing personnel work

of a kind. One of these matrons (in the Finished Film Department) asked that special work be done with a group working in the "dark room" inspecting films. We arranged a milk service during the morning and afternoon rest periods, the matron tending to the serving of milk.

A second group was started in another room the following year under this same matron's supervision. A comparison was made between the absences of the employees in the year preceding the milk diet, and those occurring in the year when the women were taking this extra nourishment. We found a very definite improvement.

In 1923 there was a young woman working in the dark room, who was losing weight and not feeling up to par. Her own physician told her that she would have to change her work. As she was earning a good wage, she wished to stay in the dark room, but she was very eager to join the group receiving special nourishment and dietary advice. She did. She gained and came up to her right weight, and is still working in the same department.

Colds are the cause of many absences in industry. In discussing the matter with the women's employment manager at the Park, we decided to see the superintendent and matron of this same department in an effort to arouse their interest in serving cod liver oil in addition to milk to a group of young women volunteering for this experiment. They approved of the plan. We met with the underweight and undernourished girls in one of the rooms, talked over the matter of diet, and outlined the project. We had twenty-eight sign up, and through the courtesy of the E. L. Patch Company we served the cod liver oil from December to May. Those who did not join the "Cod Liver Oil Squad" formed our control group.

The results were so gratifying that the following Fall notices were posted on the bulletin board, stating that cod liver oil would be served again, and asking those who wished to join the group. Eighteen of the first winter's squad reported, and eleven others. We met the underweights in another room and gave them an invitation. Over thirty accepted.

Of those who did not join the second year, one was overweight and did not wish to join, although again we tried to show her that cod liver oil and milk are necessary to "sort of bolster one up," and not necessarily to make a weight gain, but she was not willing to risk it. Five had left the company. One who very much needed it could not be persuaded to join again.

In each of these groups (and it was especially striking in the two-year

group) the women showed a gain in weight, reported they were feeling much better, had fewer hours' absence, and a higher efficiency record. The matron was impressed with the changed attitude of many of the girls; little things did not annoy them as much as formerly.

The figures showing the absences due to illness among the young women taking the extra nourishment and cod liver oil may be of interest. In 1926–27, when no extra nourishment or nutrition instruction was given, there were 1900 hours' absence in the department In 1927–28, the first year they were given this personal instruction and extra nourishment, there were 1230 hours; while in 1928–29, the third year of the experiment, there were only 730 hours' absence due to illness. This is a reduction of sixty-one per cent in the last period over the first, showing results with eighteen women, and only points the way.

The average monthly efficiency rating for the first year was 77.8; the second year, 78.8; the third year 80.1. This is not a great increase, but a bettering. We do not gauge our work entirely by figures. We gauge it, also, as the matron does, with the changed attitude of the women. It is a most interesting experience to have the girls "lukewarm" at first, and grow warmer and warmer as the experiment proceeds. You can tell them, urge them, ask them to do most anything, without resentment at all. They do not feel that it is interfering in any way with their rights.

As an outgrowth of this work, we capitalized the interest created, and weighed and measured 600 women in this department a year ago. Their percentage weight condition was worked out, using the medico-actuarial tables as standard for those under thirty years of age, and for those above we took the weight at thirty and did not indicate the weight gains allowed by the tables for additional years. Letters were sent to each one giving advice relative to diet and other health habits.

Women in other departments, hearing of this work, asked through their matrons for similar attention. Last February one group was weighed and measured, and in May the other. This time we used the weight tables given in Dr. Emerson's book, "The Diagnosis of Health," as our standard. Letters were sent as usual, and those who were seven per cent or more overweight were invited to meet the matron and Nutrition Advisor and form a reduction class. Heretofore, we had many individual cases in weight reduction, but no group. As one result of our letters, we have had thirty-eight women working through the summer to reduce their weight, and the majority have succeeded. The matrons have done the weekly weighing, with the Nutrition Advisor taking the weights once a month, and at that time displaying the individual weight charts.

In case you may gain the impression that men are not included in this work, let me mention a group formed in our smallest plant because of the interest of the nurse. We had an opportunity, through the courtesy of the Horlick's Malted Milk Company, to serve malted milk with a half pint of pasteurized whole milk mornings and afternoons. There were thirty-six people in this group, twenty-nine of whom were men. One man, a head of a department, joined in order to gain sufficient weight to pass a life insurance examination. He came up to the required standard and took out the insurance. Others could doubtless have done the same.

One year in Kodak Office we met a group of young girls six times to discuss health matters. These were mostly underweights whose absence records were high. The Nutrition Advisor gave two talks on diet, for six months kept weight records, and from time to time consulted with the young women individually.

Last Spring we formed a group of new, young employees to acquaint them with the organization, and to tell them of the opportunities offered through the Industrial Relations Department. The Personnel Director and the Secretary of the Savings and Loan Association spoke first. The Medical Director followed with two lectures on hygiene, and the Nutrition Advisor closed the series with two lectures on diet.

When it comes to the third method followed, we find a slightly different aim. In personal consultation and group studies we are working intensively with a limited number. Through "advertising" we naturally aim to reach numbers, and our teaching becomes less personal. Our first assistant in publicity work is the "Kodak Magazine." Each employee receives a copy of this monthy paper and the majority carry it home. Practically every issue has an article relating to nutrition, written in a more or less popular style, and illustrated.

The "Kodak Magazine" has just passed its tenth birthday, and in order to find out what the employees were thinking about, the editors enclosed a questionnaire in the June issue, asking for some very frank responses, unsigned. He received them, and the returns have been most illuminating. There is one invariable demand, and that is to have the articles less "preachy" and more "funny." In taking down the files and looking back through my nutrition articles I found them terribly "preachy." We certainly need to get away from that and give the joyous side, instead of the "do" and "don't." The writers also asked for good illustrations.

In 1922, every plant, but Kodak Office, had its cafeteria. Kodak Park has five, with most of the food prepared in one central kitchen. Friendly

relationships were established with the managers the first year, and although there is no direct supervision by the Nutrition Advisor, there is definite coöperation. The general plan of menus has been discussed, and emphasis placed on dairy products, fruits, and vegetables. The Nutrition Advisor, for one year, had much to do with the organizing of the new cafeteria, built and equipped in the Kodak Office building. We have used this as a demonstration center, and the others have profited by it. It will be seen later how we have used all of the cafeterias to help spread the gospel of right diet.

The majority of posters relating to nutrition make an appeal to parents, children, or young people in schools. Few seem adequate to reach the man or woman in industry. We used one of the sets of the National Dairy Council effectively by changing certain captions, mounting them, and displaying them on the bulletin boards in the different plants and in the women's dressing rooms of the Finished Films Department. As these proved helpful, we decided to make some of our own. The Director of the Art Department of Mechanics Institute interested ten of his students in painting posters to illustrate the captions we prepared. These ten posters, twenty-four inches by thirty inches, were framed, mounted on easels and displayed in all of the cafeterias. After being retouched, we used them a second time last year. We had them photographed to use as illustrations in the "Kodak Magazine." We have had two exhibits planned on a large scale and exhibited in the corridors leading to our cafeterias. When these were displayed pamphlets were distributed outlining an adequate diet and diets for reducing and gaining weight.

Thus in the eight years since I was privileged to appear before you has the work in nutrition in this industry expanded. We have shown that health improves, absence from work diminishes and efficiency increases, when a poor diet is made better, and that even a good diet can be improved. Interest has increased, attitudes and habits have changed slowly, but surely. The future is full of possibilities and holds great rewards.

THE EFFECT OF THE PROLONGED USE OF EXCLUSIVE MEAT DIETS ON TWO MEN*

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INTRODUCTION

Observations have been made on two men who lived on meat alone for one year. Meat, as it was used in these studies, included the edible portions of the animal body. The term is understood by many to refer only to lean muscle and they think of a meat diet as a high protein diet. The food consumed by the men, who for the most part ate the proportions of lean and fat meat which they desired, was moderately high in protein, high in fat, and very low in carbohydrate.

The opportunity to observe the effects of this diet occurred when Dr. Viljahlmur Stefansson and Mr. Karsten Andersen, who had lived on this type of food while carrying on explorations in the regions near the Arctic ocean, volunteered to take meat exclusively for one year while they continued their usual activities in New York. The purpose of the program was not to prove the particular virtue of any foodstuff but only to demonstrate that man can live on a purely animal diet in this climate without any supplemental vegetable food. Clinical and laboratory observations were made at intervals during the year. Dr. E. F. Du Bois, Dr. H. J. Spencer, Dr. E. A. Falk, and the author were associated in making the metabolic observations in the metabolism ward and calorimeter of the Russell Sage Institute of Pathology. Dr. C. W. Lieb had charge of the physical examinations, Dr. E. Tolstoi, the studies of the blood constituents, and Dr. J. C. Torrey, the fecal bacteriology. I am indebted to these men for their permission to report a summary of the combined observations, the details of which have been presented in a number of papers (1–11).

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PROTOCOLS

Dr. Stefansson, who had accustomed himself to the exclusive use of meat during his long journeys of exploration, was forty-eight years of age, in good physical condition, and had a blood pressure of 105/70 at the start of the observations. After a preliminary period on a mixed diet he began taking meat exclusively February 28, 1928, and continued it for 375 days to March 8, 1929, after which he took mixed diets for two weeks. At the beginning he received only lean meat in order to reach a high level in his protein metabolism. At the end of the second day an attack of nausea and diarrhea developed which subsided after two days, during which he ate more fat and less lean. He had two other mild digestive disturbances and two light attacks of pharyngitis.

The second subject, Mr. Andersen, had accompanied Stefansson on one of his arctic expeditions. He was thirty-eight years of age, Danish by birth, small in stature, and in excellent physical condition with a blood pressure of 140/80. He started eating meat January 24, 1928, after taking mixed diets for three weeks, and continued it until January 24, 1929, in all 367 days. Aside from two short attacks of pharyngitis his year was without particular incident. For the next three weeks he received diets all high in fat. On February 15, 1929, his first day on a general mixed diet, he developed lobar pneumonia. He received intensive serum treatment, his temperature remained elevated only three days, and his convalescence was uneventful.

The third subject, a physician and laboratory worker, took meat alone for a period of ten days.

NATURE OF THE DIET

The men took beef, lamb, veal, pork, and chicken in the course of their year on the diet. The portions of the animal used included muscle, liver, kidney, brain, bone marrow, bacon, and fat. Except for short periods of special observation the men chose the kind of meat which they desired and ate as much as they wished of the lean and the fat. Stefansson for thirty-one days took an average of 0.81 kg. (1.8 lbs.) of meat per day. Andersen for 110 days averaged 0.79 kg. (1.7 lbs.) daily. They took approximately 0.6 kg. of lean meat made up of muscle and gland tissues and 0.2 kg. of fat from body fat and bone marrow. The diet therefore cannot be called a "tallow diet" as has been suggested by some critics of these studies.

The energy value of the ration varied from 2000 to 3100 calories, of which fifteen to twenty-five per cent of the calories were derived from protein, seventy-five to eighty-five per cent from fat, and one to two per cent from carbohydrate. The average diet for a man weighing 70 kg. who is pursuing a sedentary occupation, as given by Rose (12), contains an energy value between 2200 and 2800 calories with ten to fifteen per cent of the calories derived from protein. The meat diet, in comparison, showed only a moderate increase above the

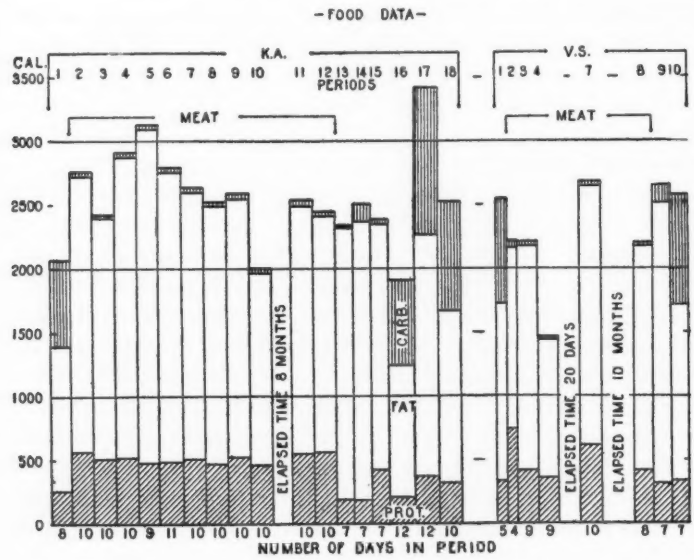

CHART 1. FOOD DATA BY PERIODS GIVEN IN AVERAGE CALORIES PER DAY

The hatched areas at the bottom represent the calories from protein, the vertical lined areas at the top, the calories from carbohydrate, and the clear areas, the calories from fat.

average protein intake, a much greater amount of energy derived from fat, and a very small amount obtained from carbohydrate. The data of the foodstuffs eaten during the meat periods were taken from analyses of samples of meat which duplicated as closely as possible the actual meat eaten. The remainder of the data were calculated from the tables of food analyses as published by Rose (13). A summary of the food taken is given in chart 1. The men received approximately 500 calories per day from protein, twenty to fifty calories from carbohydrate, and the remainder, about 2000 calories, from fat.

In Periods 13 and 14 Andersen received only one third of the amount of protein that he had taken when eating meat exclusively. In Period 13 additional fat was given to provide for his usual energy intake and in Period 14, 35 grams of carbohydrate was added. The intake of fat in these periods was higher than during the regular meat periods. Carbohydrate as desired was started with Period 16 when he developed pneumonia. The infection accounted for the decreased intake of this period. The greater ingestion of food in the next period coincided with his convalescence. Stefansson, in Period 4, was below his usual intake because of a mild intestinal disturbance.

The men took by preference boiled meat together with the fluid in which the meat was cooked. They ate some steaks and chops, but these were not the most desired portions. They preferred rib cuts, shank, tongue, and liver, to the usual steaks. Stefansson used lamb largely while Andersen chose beef more frequently. The meat was taken for the most part only lightly cooked, except for the bone marrow which was eaten raw. They generally took three meals daily but occasionally a fourth was added. A sample menu for the day follows:

Breakfast: Lean beef, 190 grams; fat, 100 grams.
Dinner: Liver, 200 grams; fat, 75 grams.
Supper: Lean beef, 200 grams; marrow, 70 grams.
Protein, 120 grams; fat, 252 grams; carbohydrate, 8 grams; 2868 calories.

This menu is representative of their average intake which varied for protein from 100 to 140 grams, for fat from 200 to 300 grams, and for carbohydrate from 7 to 12 grams daily. The meat was cut from the bone and trimmed before weighing and serving except for one period when Stefansson ate "from the bone" which was the method of choice when they were not taking weighed diets. The accurate sampling of the meat for analysis was difficult during this period. The meat used for the first three months was from animals butchered the day before, but for the remainder of the year they ate refrigerated meat purchased in the local markets.

The diet contained about twenty-five per cent of the amount of calcium found in the average mixed diet. Phosphorus and sulphur were present in amounts larger than usual. Table salt was allowed as desired, but the men used only 1 to 5 grams daily including the salt added in cooking. The ash from this diet was distinctly acid in its reaction. For liquids the men took coffee, black tea, meat broths,

and water. The amount of fluids varied from one to two liters per day.

THE EFFECTS OF THE DIET

General. The physical condition of both men was as good at the end of the year, if not better, than at the beginning. There was no elevation of their blood pressure, but one subject (K. A.) showed a decrease of 20 mm. in his systolic pressure. They lost from 1 to 2 kg. in weight during the first week which was accounted for by loss of water from the body associated with the low carbohydrate content of the diet. For the remainder of the year their weights were practically constant. Their activity was that of the average office worker in New York City and they showed no evidence of physical or mental fatigue.

Constituents of the urine. The daily volume varied from 900 to 2000 cc. The nitrogen excretion by periods ranged from 16 to 28 grams per day. The largest amount of nitrogen eliminated in one day was 35 grams which occurred when Stefansson was taking only lean meat. The acidity of the urine was increased two to three times over that of the preliminary periods when they received mixed diets. Acetone bodies were excreted during the entire period of the exclusive meat diet, ranging from 0.5 to 7.2 grams per day. They quickly disappeared when carbohydrate was added to the diet in its usual amounts. Sugar was present in Andersen's urine for four days following the ingestion of 100 grams of glucose for a sugar tolerance test and the resumption of a regular diet. The pneumonia which he had at this time might have been a factor in causing the glycosuria. No albumen, casts or blood were found with the usual routine examinations. The special technique of Addis (19) was not employed.

Intestinal function. The men ate with relish during the year and had only one or two periods when their appetite was below par. Absorption of the foodstuffs was more complete when they ate only meat than when they took a mixed diet. The loss of nitrogen and fat in the feces was equivalent to only three to ten per cent of the amounts of these foodstuffs ingested. The stools were small in volume, inoffensive in odor, and acid in reaction. There was no flatus. Dr. Torrey, in his studies of the intestinal flora, found a distinct simplification of organisms with the absence of those which required carbohydrate for their development. Only a few putrefactive spore bearing anerobes were noted. No constipation developed.

Blood. The studies of the constituents of the blood by Tolstoi revealed no significant change in the nitrogenous elements. He found that the cholesterol varied from 200 to 800 mg. per 100 cc. of blood. There was at times a visible lipemia. The numbers of the red and the white blood cells and the amount of hemoglobin did not vary significantly.

Nitrogen balance. The average daily intake and output of nitrogen is presented in chart 2. Andersen remained in nitrogen equilibrium when taking meat, but in Period 16 when he had pneumonia he lost 8.1 grams of nitrogen per day which is the equivalent of approximately 250 grams (8 ozs.) of muscle tissue. In Periods 3, 4, and 8, Stefansson

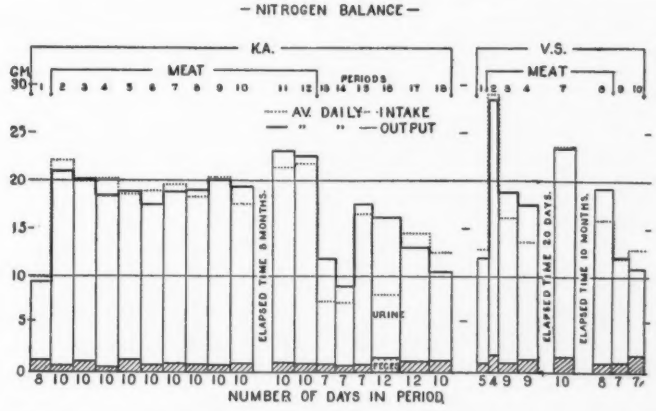

CHART 2. NITROGEN BALANCE SHOWING THE INTAKE AND OUTPUT AS DAILY AVERAGES FOR EACH PERIOD

The hatched portion represents the nitrogen in the feces and the clear areas the amount in the urine.

lost small amounts of nitrogen from the body. A review of these balances reveals, first, that the amount of nitrogen lost in the feces was relatively the same on both the mixed and the meat diets, but when the amount lost was compared with the intake, the per cent of the ingested nitrogen which was eliminated in the feces was much lower when the men took meat exclusively. Second, with the greater intake of nitrogen there was no evidence of its storage in the body, a finding that emphasizes the fact that protein, taken in excess of the amount required for repair of the tissues, is utilized for the production of energy particularly in the absence of carbohydrate. Finally, the marked negative nitrogen balance of Andersen during the period when

he had pneumonia suggests the need for a liberal intake of protein during the course of severe infections in order to prevent the wastage of the body tissues, especially the muscles and glands.

Calcium balance. With an average intake of approximately 0.1 gram per day, the calcium excreted varied between 0.3 and 0.5 gram. The balances are shown in chart 3. The meat diet as it was taken during the periods of observation was deficient in calcium since it provided only twenty-five per cent of the amount excreted. About sixty-five per cent of the calcium eliminated was in the urine and thirty-five per cent in the feces. In Period 7, Stefansson ate the meat from the bones and there was a large increase in the amount of calcium

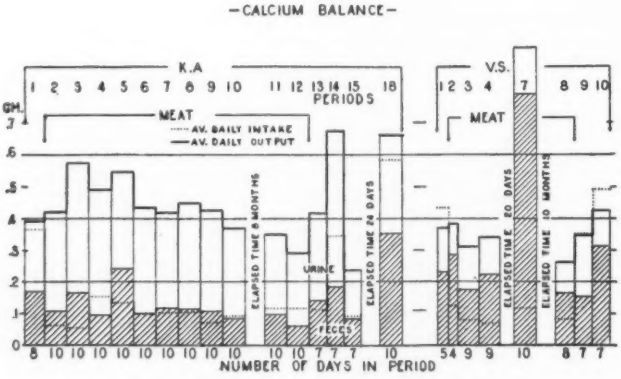
—CALCIUM BALANCE—
K.A
V.S.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 18
PERIODS
1 2 3 4 7 8 9 10
GM.
MEAT
MEAT
AV. DAILY INTAKE
AV. DAILY OUTPUT
ELAPSED TIME 8 MONTHS
ELAPSED TIME 24 DAYS
ELAPSED TIME 20 DAYS
ELAPSED TIME 10 MONTHS
URINE
FECES
8 10 10 10 10 10 10 10 10 10 10 10 7 7 7 10 5 4 9 9 10 8 7 7
NUMBER OF DAYS IN PERIOD

CHART 3. CALCIUM BALANCE
The explanatory remarks for chart 2 apply in this chart

excreted in the feces which made the total excretion over 0.9 gram per day. The findings in this period were not comparable with any of the periods when they took meat which previously had been cut from the bones. The indicated intake is undoubtedly much too low because it was impossible actually to duplicate all the tissues, either fibrous or bony, which were taken by the subject when eating from the bone. It was found in another study of calcium in this laboratory (14) that the amount excreted in the feces was influenced very easily by the amount ingested. Therefore the loss of calcium from the body which occurred during the periods of observation might not have continued throughout the year when the men ate the meat from the

bone for there was no evidence, either clinically or roentgenographically, that this drain of calcium produced any ill-effects.

Phosphorus balance. The information gained from the study of the phosphorus is given in chart 4. With the increased intake of phosphorus, when the men were eating meat exclusively, there was sufficient increase in its elimination in the urine to more than balance the greater intake with the result that they were in negative balance most of the time. The excretion of this element in the urine in the form of acid sodium phosphate was one method which the body used to meet the ingestion of considerable amounts of food which produced acid

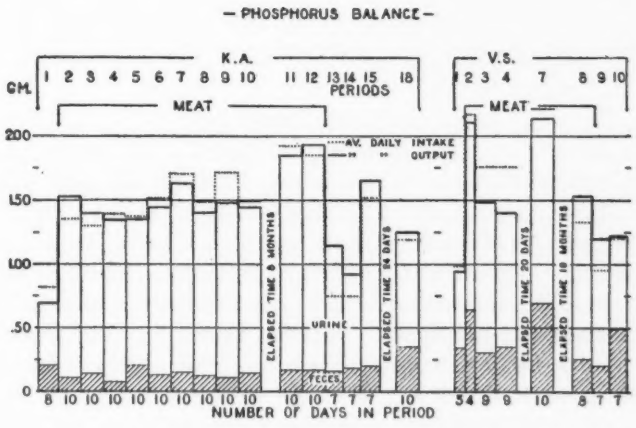

CHART 4. PHOSPHORUS BALANCE
The explanatory remarks for chart 2 apply in this chart

ash. The actual loss of phosphorus from the body was relatively very small.

Basal metabolism. The meat diet did not produce any change in the level of their basal metabolism which varied between −10 and −20 per cent of normal by the Aub-Du Bois standards.

DISCUSSION

Meat has been the main article of food for many people for generations, particularly the Eskimos. The only quantitative study of their diet was made by Krogh and Krogh (15), who estimated that it contained 282 grams of protein, 135 grams of fat, and 54 grams of carbohydrate. The

information on which the Kroghs calculated this diet was obtained from Rink, who in 1855 made a statistical study of the food consumed by the Eskimos in the Southern Inspectorate of Greenland where the population was about 6100 Eskimos, of whom forty per cent were under fifteen years, three per cent over sixty years, forty-eight per cent males, and fifty-two per cent females. The Kroghs, then, after allowing for shrinkage due to drying, cooking, and disposal of the unedible portions, worked out the diet as given above. They comment on it as follows:

> Though the figures here given may easily be 10 per cent and possibly even 20 per cent wrong or more, the main result cannot be doubted. The food of the Eskimos, while containing a normal amount of energy, is extremely rich in protein and fat, and contains an exceedingly small amount of carbohydrate, of which moreover about one-half is represented by glycogen contained in the meat.

It would appear from the observations of Stefansson while living with the Eskimos, from our experiences with the meat diet, and from the report of Newburgh and his co-workers regarding the effects of a high meat diet on one man, that the diet of the Eskimos as reported by the Kroghs is too low in the amount of fat and that the protein actually does not account for forty-six per cent of their total energy. Stefansson (16), in his descriptions of the food habits of the Eskimos, makes frequent reference to their use of blubber, fat, and marrow, and when food is scarce he states that they may live for days on seal oil alone. In our observations on the meat diet the men did not receive on the average more than twenty-five per cent of their calories from protein. Once when Stefansson took only lean meat for two days, with forty-four per cent of the energy in the form of protein, he developed anorexia, nausea, and diarrhea, which quickly cleared up when fat was added to the diet. Newburgh, Falcon-Lesses, and Johnston (17) gave a diet which contained thirty-two per cent of protein calories, and they found evidence of irritation of the kidneys, as judged by the presence of albumen and casts in the urine, which quickly disappeared when the protein in the diet was reduced. A diet, then, which contains one third or more of its energy in protein is likely to be harmful to the individual if continued for long periods. Therefore it seems probable that the estimation of the Kroghs on the amount of fat in the diet of the Eskimos is below the actual amount consumed when plenty of food is available.

A diet consisting of meat alone, when one includes the edible portions of the animal's body under this head, contains all the necessary factors

for a complete diet. McCollum and Simmonds (18) in discussing the food of carnivorous man and animals emphasize this fact as follows:

> It is obvious, therefore, that the tissues of one animal contain everything which is essential for the nutrition of another. . . . . The flesh eating of carnivorous animals is very unlike that of civilized people in the temperate zone. The latter are very fond of the muscle cuts of meat, viz., steaks, chops and roasts, whereas carnivorous men and animals eat blood, glandular structures, bone marrow, fat and an appreciable amount of bone substance in preference to muscle tissue.

In our studies the only obvious deficiency was in calcium which probably was due to the way in which the meat was served, that is, cut from the bone. When the men ate from the bone they apparently received more calcium. The diet was adequate in phosphorus, sulphur, and iron. In evaluating its vitamin content, the absence of all diseases which are commonly classed as being due to a lack of vitamins was taken as evidence that the diet contained the necessary amounts of these accessory food factors.

In living on meat alone it is important to have available the proper proportions of the lean and the fat. It was found that a diet in which between twenty and twenty-five per cent of the calories were supplied from protein, and between seventy-five and eighty per cent from fat was well tolerated for long periods. When Stefansson, in Period 2, took over forty per cent of his calories as protein, a digestive disturbance occurred which has been described in the protocol, and when Andersen, in Periods 13 and 14, received over eighty-five per cent of his energy in the form of fat his appetite was poor, he was less active than usual, and he had difficulty in taking a full diet. The effects resulting from lack of either the lean or the fat have been described by Stefansson in the book referred to above (16). At times in his travels he was unable to obtain a sufficient supply of both lean and fat meat and he vividly pictures the situation in the following lines:

> When we had been on a diet of oil straight, a few weeks before, we had found that with a teacupful of oil a day there were no symptoms of hunger; we grew each day sleepier and more slovenly, and no doubt lost strength gradually, but at the end of our meals of long-haired caribou skin and oil we felt satisfied and at ease. Now with a diet of lean meat everything was different. We had an abundance of it as yet and we would boil up huge quantities and stuff ourselves with it. We ate so much that our stomachs were actually distended much beyond their usual size—so much that it was distinctly noticeable even out-

side of one's clothes. But with all this gorging we felt continually hungry. Simultaneously we felt like unto bursting and also as if we had not had enough to eat. One by one the six Eskimos of the party were taken with diarrhea.

The low level of the carbohydrate in the diet of our subjects resulted, first, in the production of a mild ketosis associated with the high utilization of fat, and, second, in the partial loss of the ability of the body to use carbohydrate normally. The ketosis which occurred was mild, persisted throughout the year, disappeared a few hours after a liberal amount of carbohydrate was taken, and, so far as could be determined, produced no injurious effect. The change in their ability to use carbohydrate was noted by Tolstoi (5), who found a high sustained level of the blood sugar after the ingestion of 100 grams of glucose at the end of the year. After two to four weeks of mixed diet, the tests were repeated and normal reactions were found, showing that the men quickly responded to the stimulus of carbohydrate in the diet.

From the tests and observations made, no evidence of kidney irritation or decrease of kidney function was noted. No blood, albumen, or casts were found in the urine at any time with the ordinary clinical methods; functional tests were above the average at the end of the year, no retention of nitrogen in the blood occurred, and roentgenograms of the kidneys revealed no evidence of hypertrophy. Of course, in this study the kidneys could not be observed under the microscope and it would be impossible to say definitely that no changes occurred.

Economically, the diet was expensive, and socially it caused some inconveniences for the men. Because of the many sources from which the meat was secured it is not possible to give the actual amount expended for meat during the year, but for March, 1928, when both men took their meals in the ward, the cost of the meat was $225.61. This amount is somewhat higher than the average for the year because the method of cutting the meat from the bone before serving resulted in more waste than when the men ate from the bone. Meat is recognized, however, by students of nutrition as one of the expensive forms of energy in our menus. The inconveniences which arose were only of minor importance. They were, first, the necessity of refusing appetizing dishes at the tables of their hosts, and, second, the difficulty of obtaining an adequate supply of meat in the menus of all meals when they were eating in restaurants or traveling.

Our observations, we feel, support the fact which has been recognized among primitive peoples that man can live on a meat diet without

physical deterioration resulting. This shows that such a diet is complete. It would seem also from this work that the use of meat in a general diet may not have been the cause of all the evil effects which have been ascribed to it. On the other hand, our findings cannot be used to prove the contentions of the dietary faddist who says that meat should be taken by everybody as the ideal way to prevent and cure all ills.

CONCLUSIONS

1. It is possible for man to live for long periods on meat alone.
2. Clinical observations and laboratory tests revealed no evidence to show that these men suffered any ill-effects from their prolonged use of an exclusive meat diet.
3. The diet was moderately high in protein and very high in fat.
4. Lean meat alone was not well tolerated.
5. A prolonged mild ketosis occurred.
6. The ability of the body to use carbohydrate was reduced temporarily.
7. The diet was expensive, caused some social inconveniences, and was not one to be recommended for universal use.

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FOOD POISONING*

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The term "food poisoning" is not a scientific one. Despite its fairly wide use in newspapers and elsewhere it is unsatisfactory, though it is better than the term "ptomaine poisoning" which is so often mentioned by the press. The term embraces several widely different conditions, as will be shown. No person whose duties are in any way concerned in the preparation of food should be without information as to these conditions.

Strictly speaking, the eating of any food that contains substances that are poisonous to the human body, may give rise to food poisoning. Poisons may be of several types. In general, we may classify them into (1) vegetable poisons, (2) mineral poisons, (3) poisons that have been formed by bacteria, and, (4) actual disease produced by living microörganisms contained in food. Let us consider briefly each of these four groups.

1. *Vegetable poisons.* In the course of the natural growth of certain plants, substances are formed which are poisonous to the human body. Such plants and their products are, of course, not to be used for food, but it sometimes happens that through mistake (or criminal intention) they are eaten. Perhaps the best known example of this type of food poisoning is that due to eating the poisonous mushrooms or "toad stools." These plants resemble the edible mushrooms quite closely, so that tragic mistakes have been made. It is dangerous to eat any wild mushrooms unless one knows the type that is being gathered. There are many kinds of both poisonous and edible mushrooms, and there is no single test to tell, in every case, the one from the other. There are other poisonous plants which resemble edible plants. Some years ago in England a cook went into the garden to get horse radish. Instead, she got by mistake one of the roots of the monkshood plant, prepared and served it. This plant contains a rapidly fatal poison so that all who ate it died. There are other poisonous plants which are occasionally eaten by mistake.

* This paper is based on a series of lectures delivered before the Officers' Classes at the U. S. Army School for Bakers and Cooks, Fort Benning, Georgia. Reprinted by permission of the editor of *The Quartermaster Review*. This paper is published in the November-December issue of *The Quartermaster Review*.

2. *Mineral poisons.* There are many mineral poisons which in one way or another may come harmfully in contact with food. Some coloring materials (particularly green) have been found to contain arsenic. Strong lemonade made in tin, copper, brass, or aluminum containers may cause attacks of poisoning from the metallic salts set free by the acid of the lemon juice. Other mineral poisons, which in harmful quantities get into foods, include copper sulphate, sodium benzoate, and other preservatives. At times, fresh vegetables and fruits may be contaminated with poisons contained in sprays used to destroy insects during the growth of the crop. At Fort Benning I found arsenic on a consignment of celery a year or so ago. Poisoning may result if strong soaps or lye, containing caustic alkali, are left in the dishes of kitchen utensils after washing. Occasionally, rat poisons, containing strychnine and other harmful substances, get into foods, perhaps being carried there by the rats and mice themselves. Other instances of mineral poisoning have been reported where careless kitchen personnel have left unlabeled poisons on the shelf where they have been used for salt and sugar, since many of them are quite similar in appearance. It is a good policy never to leave poisons in the kitchen or on the shelves of the pantry or storeroom. Certainly no unlabeled box or bottle should be tolerated.

3. *Poisons formed by bacteria.* The botulism bacillus has a very peculiar property. Though in itself harmless if swallowed, it grows in certain types of food out of contact with the air, forming a deadly toxin or poison.

4. *Disease produced by living microörganisms in food.* This is not a food poisoning precisely, though usually included under that general head. It is really a food infection, for the victim himself becomes infected with the disease-producing organisms of the meat.

I do not propose to describe to you even a few of the many diseases that are transmitted to human beings by means of food and drink. Practically all of the diseases of the digestive tract are transmitted in this manner, including such maladies as typhoid fever and cholera, intestinal parasites such as tape worms, and many others. Such diseases are not food poisoning, though typhoid fever transmitted by oysters, or cholera by uncooked vegetables, etc., might, in a sense, be included in that category. The cases of special sensitivity to certain foods are not included.

Those who supervise or carry out the preparation, care, and serving of food to large groups of people, such as a military mess, have a weighty responsibility on their shoulders. The mess has an important relation-

ship to morale. In the past four years, during which time I have had occasion to inspect and score, upon a monthly competitive basis, the forty odd messes at this large post, I have been much struck by the morale of the good messes and the lack of morale of the poor ones. And it is in the good messes, where proper care is given to food in all stages of its preparation, that they are less likely to have cases of food poisoning.

Food poisoning tends to affect large bodies of people. If an article of food contain a poison or harmful bacteria, obviously the number of persons exposed to the danger is the number of persons who have eaten the food. The only reason that every person who eats food containing a poison is not affected is because some have higher resistance than others, and some receive more of the poison.

Of the four types of food poisoning that I have mentioned, those due to poisonous vegetables, such a mushrooms, or to mineral poisons, such as copper sulphate, need little consideration in the present connection, for the fault usually does not lie with care of the food or its preparation. The other two types, however, are not so easily understood and merit further explanation.

BOTULISM

Botulism, derived from the Latin *botulus*, meaning a sausage, is in a class by itself. It is the only disease caused by toxins developed by the growth of bacteria *outside* the body. It was in sausages that the poison of botulism was first discovered, and the disease was accordingly named. It is fortunately not a common disease, though undue space is devoted to it by the press every time there is an outbreak. *Clostridium botulinum* is remarkable in several respects; it is widely found in nature, in the soil, in the air, and consequently on nearly all of the foods that we eat. But it is in itself quite harmless. It does not produce botulism when swallowed. Merely taking the botulism bacillus into the body does not bring about the disease as the typhoid bacillus causes typhoid fever, or the diphtheria bacillus causes diphtheria. In order to produce the toxin of botulism, it is necessary that it grow, out of contact with the air, on some food substance. In other words, botulism is caused by eating foods contaminated with the anaerobic botulism bacillus. One must bear in mind that this bacillus cannot grow and produce a toxin if the food is kept in contact with the oxygen of the air. This is one of the reasons for urging messes to unwrap meats as soon as they are received, and not to store them, even in the ice box, wrapped up and therefore out of contact with the air. The gummed paper used for wrapping meats at the Fort Benning Post Ex-

change is printed with a warning to this effect. Fresh meats are not the commonest source of botulism, however; the principle danger is in improperly canned foods—often those which are canned at home. If the heat used in canning has not been sufficiently high to kill the botulism bacillus (likely to be found on all fresh food), and the food is closed in an airtight can, we have all the necessary conditions for these bacilli to grow and produce the botulism toxin. This bacillus is hard to kill, since it produces spores which can stand very high temperatures without being killed. Foods canned on a commercial scale are carefully supervised by the Federal Government, though, even so, there is a certain danger. But foods canned at home are often improperly managed and the risk of botulism is ever present. In many of the large messes the organization gardens furnish an abundance of vegetables in the summer, and pickles, catsup, chili sauce and the other ordinary canned vegetable products are put up for the winter months.

One of the most insidious features of the development of botulism toxin in canned foods is that no unpleasant odor or taste results. About the only change taking place that one can detect without a laboratory examination is the formation of gas. This may be detected when the can is first opened, or even before.

Fortunately, the toxin of botulism is itself not very resistant to heat. Hence, if suspicious foods be heated before they are served the poison would be destroyed and the food made safe. All of the botulism bacilli may be dead, and yet the poison that they have manufactured remains, for the poison is merely a chemical compound. A temperature of 212°F. is sufficient to destroy this toxin.

On the other hand, many of the foods that may contain this poison are not of the kind that are heated before serving. A few years ago there was much publicity given to an outbreak of botulism caused by eating ripe olives. They were, of course, not cooked after the can was opened, and so there was no way of destroyng the botulism poison before the olives were served. Had proper attention been paid to the condition of the cans in which the olives were packed, there would have been no outbreak, for the unopened cans from the same batch were found later to show all signs of danger.

Acid foods, such as fruits, green olives, and others, are less likely to favor the development of the poison of botulism for the reason that the bacillus does not grow well in the presence of acid. But do not think that the mere addition of an acid, such as vinegar, to a canned product (spinach, for example) will prevent botulism, for if the poison be already formed, acid does not destroy it.

The symptoms of botulism do not appear until about eighteen to thirty-six hours have elapsed after eating the poisonous food. This delay is quite beyond the period of the ordinary digestive upset from food. The first sign is a peculiar indefinite indisposition, associated with a feeling of fatigue, headaches and dizziness, and a definite muscular weakness. There is no pain, no stomach ache. There are disturbances in vision, difficulty in swallowing, and a progressive muscular weakness that reresembles paralysis. In some instances there is actual paralysis. There is no nausea or diarrhea. The mind remains clear. In fatal cases death takes place between the fourth and tenth day. After the tenth day there is rarely any further danger. In some outbreaks as high as 100 per cent of those affected die. In even the least serious outbreaks nearly half of those affected succumb. So you see it is no mild disease.

This peculiarity of botulism, that eighteen to thirty-six hours pass before the onset of the disease, often leads to mistakes and the incrimination of the wrong food. Obviously, several meals will have been eaten after the one in which the poisonous food was served, and there is always a tendency to consider the last meal eaten as the one at fault.

I have said that cooking of canned foods, even those containing the botulism poison, will largely eliminate the danger by breaking down and destroying the poison, but the cooking must be recent. If a food be cooked and then allowed to stand, the toxin may reform and botulism result. This is one of the reasons that we consider it unwise to hold canned foods too long before use, after they have been opened.

Salt solutions are effective in the preservation of certain foods, particularly meats. It has been found that if the brine is of 8 per cent or greater strength, the growth of the botulism bacillus is prevented.

Where garbage is fed to animals, it is important not to throw the contents of suspected cans into the containers, for fear of poisoning the animals. Such cans with their contents should be burned. At Fort Benning we have a system of separation of garbage and wastes, the former being sold to a contractor who uses it to feed pigs, while the latter is burned at the post incinerator. In this way ground surface is not further contaminated with botulism bacilli. This point has been stressed by sanitarians.

FOOD INFECTION

This condition is really not a poisoning at all, but an actual infection, for it is produced when certain living harmful microörganisms are swallowed with the food. This is the type that is commonly and incorrectly called ptomaine poisoning.

In order that food infection occur, actual pathogenic bacteria must be present in the food. The condition is sometimes known as "meat poisoning" since meat is the most common source of infection, but this term is not sufficiently broad, because other foods, notably milk and milk products, and vegetables, may cause the disease.

The condition was first found in Germany, in 1888, where an outbreak of food infection resulted from the eating of a beef animal that had been suffering from inflammation of the intestines. This was before the present strict laws against the killing for food of animals suffering from disease. Formerly, the so-called "emergency slaughtering" placed on the market meat from animals that were in the acute stages of highly communicable diseases. Meat infection was first described by Gärtner, and his name is often associated with the disease. *Salmonella* is the term for the group of bacteria which cause food infection. Contrast for a moment this condition with food intoxication (botulism). Food infection is a disease produced by living bacilli. If these bacilli are killed before the food is eaten, the disease will not result. Botulism, on the other hand, is not caused by living bacilli, for the living bacilli are in themselves harmless. The poison must be formed outside the animal body and then swallowed with food. Whether bacilli are dead or not at the time the food is eaten makes no difference.

In food infection, there is a considerable variation in the number of people who are attacked after eating the infected food. Sometimes nearly all have the disease, again only about half. Much depends on the individual resistance of those who eat the infected food. The disease is at times fatal, though this has not been the case in the United States to as great an extent as in foreign countries. The outbreaks are likely to occur in summer because it is then that the intestinal diseases multiply rapidly, and the disease in food animals results, as we have seen, in the disease in human beings.

Most of the outbreaks of food infection follow the use of prepared meat foods, such as sausage, meat pies, chopped meat, "hamburger," and meat balls. The more that foods, particularly meat foods, are handled, and the longer they are allowed to lie around (even when iced), the greater the opportunity for bacteria to grow and multiply. Referring again to the local post exchange and commissary, posted therein are signs to the effect that no one but the regular meat cutters is permitted to handle meats. The latter, holders of Food Handlers' Certificates, certifying that they are free from communicable disease, are instructed to handle meats as little as possible.

One of the greatest mistakes made, even by trained mess personnel, is the belief that in food infection the food is changed in appearance, taste or odor. Such is not the case. The most dangerously infected meat may have no unpleasant smell at all, may not have a disagreeable taste, and in appearance may be just the same as the best of meats.

Probably the cause of this error, in popular opinion, is the old idea that meat infection is "ptomaine poisoning." The word *ptomaine* is derived from the Greek word *ptoma*, meaning a corpse. It was formerly supposed that chemical substances were formed in the dead bodies of animals, which, if consumed with the decaying food, were highly poisonous. The idea was derived, obviously, from the cases of illness following the eating of decomposed foods, particularly preserved foods. We now know that this is not the correct supposition. Food infection comes from the swallowing of living bacilli, and whether or not this is associated with decomposed food, is of no concern whatever. The so-called "high" game, fortunately not so popular now as formerly, is partly decomposed, and yet often eaten without bad effect, though there is always risk of coincident food infection. The term "ptomaine poisoning" is therefore scientifically incorrect and should be dropped.

The signs of food infection usually develop from three to twelve hours after eating the infected food, though more rarely the time may be as short as two hours, or as long as seventy-two. The well known signs of irritation of the food canal develop suddenly, such symptoms including nausea, vomiting, and diarrhea. At times, a headache and chill are early symptoms. A later symptom is the severe pain in the abdomen, pain that makes the sufferer "draw up his body into a knot," and there are repeated bowel movements. The victim becomes faint; there is great muscular weakness and prostration, mild fever and nervousness. There may be twitching of the muscles. Occasionally, after the trouble has lasted for several hours, there may be drowsiness. Throughout the attack there is great thirst. The severity of the seizure varies markedly, this being, in all probability, due to the virulence of the particular organism causing the disease, as well as to the resistance of the patient. The more virulent the organism, and the lower the individual's resistance, the more severe the attack. The disease is not often fatal.

One is not to conclude that every attack with digestive symptoms such as have been described is due to harmful foods. Such symptoms may also come from ordinary indigestion, indiscretions in diet, eating heavily when fatigued, and other causes. Many nervous people can have such attacks when there has been nothing whatever wrong with the food.

The chief cause of true food infection is eating meat from an animal that was suffering from intestinal disease, for meat is always to be regarded as the most common source of the trouble. Meat, even that from healthy animals, may become infected by rats or mice if not properly protected.

The prevention of food infection begins with the food inspector. In the Army, the veterinarian is responsible for this important duty. Animals recognized as having certain types of disease are not allowed to be used for food purposes. The proper refrigeration of foods is essential. The harmful bacteria mentioned grow much more rapidly in warm than in cold foods. So do the bacteria that cause the decomposition of meats and other foods. Therefore, we have every reason to keep foods cold. Foods that have been prepared several hours before use and then allowed to become warm are the cause of much trouble. That is why picnic lunches, food sent out to men on the ranges, food for marches, etc., are all particularly likely to cause outbreaks of food infection.

Cooking is our greatest protection. Heat kills the germs of food infection so that food that has been cooked will not produce this condition—provided it does not stand so long before use that it takes on other harmful bacteria. In other words, there should be as short an interval as possible between the cooking and the serving of food. The preference for hot food on the part of the members of a mess makes this desirable from another standpoint.

Since such stress has been placed on the proper care to be given canned foods in order to be sure that they are in good condition and suitable for food, the following rules for the detection of defective cans may be useful.

Manufacturers of canned vegetables and fruits only guarantee their goods for six months. Hence, if the date on the crate is not within that time, the goods should be rejected by the purchaser. It would be safer if each individual can were dated, but this practice is not usual. It is possible for but one or two cans of a crate to be spoiled, but in general we must consider the crate as a whole. A mess, or supply officer, who purchases more cans of food than his command will use in a six months' period is not using good judgment.

When inspecting the cans themselves, first remove the labels and inspect to see if minute leaks can be found. Sometimes the tiny code marks that are placed along the side seams of cans may show the last two figures of the year of packing. In other cases, they may be only the private marks of the manufacturers and unintelligible to others.

The ends of the can ought to be flat or slightly retracted, for there

should be a vacuum within. If this vacuum has been partly lost, one end of the can may be pushed in by pressure of the finger, but will spring back again when the pressure is released. Such cans are known to the trade as "springers." A can bulged out of shape by internal pressure is, similarly, called a "swell." Such cans show that there is not the proper vacuum within and should immediately be regarded with suspicion. There are a number of causes of this condition. The can may have become dented. Altitude may have brought about the change, for a can that shows a 2-inch vacuum at sea level would show an internal pressure of 1 inch at 3,000 feet and 3 inches at 5,000 feet. Temperature may also have played a part. High temperatures cause expansion of even a small amount of air in the can. Such air may be accounted for by sealing at too low a temperature, and thereby be a source of danger as facilitating the growth of bacteria if the contents are not entirely sterile, that is, without any living bacteria. If the can were not tightly closed in the first place, it might allow the passage of air, termed by the canning industry a "breather." Another cause of gas in a can is the action of the acids in the fruit, or other canned product, upon the metal of the can itself, thus generating hydrogen. Hydrogen "springers" are not dangerous, but it is not easy to tell them without laboratory examination. Sauerkraut in a can may swell and cause bulging of the can ends without any cause for fear. The only other cause of "bulging" and "springing" of cans is bacterial decomposition. There are laboratory tests for the type of gas that is developed by decomposition of foods, but, of course, it is hardly practicable to make such tests when merely inspecting cans. Hence, since we cannot afford to take chances in the military service, and would rather reject some cans that are safe than run the risk of serving food that may cause food poisoning, it is better to reject all cans showing bulging, "springing," or which, upon being opened, give forth a puff of gas.

On opening cans of food, there are certain other signs of danger that we must take into consideration. If there is the odor of decomposition, or a peculiar odor somewhat resembling that of rancid butter, reject the can. The odor of rancid butter often indicates the presence of the poison of botulism. Mere discoloration of the canned food, while often due only to the action of hydrogen on the small amount of rust within the can, is usually a proper cause for rejection, as discolored food, even though not harmful, is unattractive. Such discoloration is likely to be found in canned fish, okra, hominy and corn.

Even though there has been no spoiling of the food in the can, some

cheap grades of canned foods show, on inspection, that parts were decayed at the time of packing. Such conditions are readily noted, and should cause rejection of the can.

These rules are given for general guidance, but in case of doubt it is always best to submit the suspected can to the Medical Inspector or other medical or veterinary officer. Wherever there have been cases of suspected food poisoning, it is highly important that the Medical Inspector be notified promptly, since much depends on early investigation.

It is not a safe practice to test suspicious foods by tasting them. Many a cook has lost his or her life this way. Furthermore, it has been shown that the taste of a food is not an efficient test.

To sum up briefly, food poisoning may be caused by vegetable, mineral, or bacterial poisons. Food infection, not true poisoning, since living bacteria are at fault, is produced by a group of the intestinal bacteria of animals. All of these may cause serious or fatal results, and mess personnel must exercise the utmost care to prevent the serving of food containing any of them. Foods, particularly meats, should be handled as little as possible during preparation and storage. Preserved foods, especially canned, must be inspected carefuly before serving. Cooking as short a time as possible before service, is our best safeguard. Where canning or preserving is done at the mess, adequate heat must be used, the containers must be well sealed, and stored where they will not be damaged. A knowledge of all these points is not merely desirable, but essential, to those responsible for the food of the soldier.

DETERMINATION OF THE AMOUNT OF EDIBLE MEAT AS AFFECTED BY METHODS OF PREPARATION*

FAY BURNETT AND EDNA M. SHALLA

A study has been made of the amount of edible meat that might be expected from raw meat after the processes of butchering and cooking.

Approximately 4000 pounds of beef and pork were used for the study. It was ordered from packing houses, specifying fresh chilled native steer, choice No. 1 grade for beef cuts; for fresh pork, loins, ten to twelve, and twelve to fifteen pounds; green skinned hams twenty to twenty-two pounds; smoked pork, and skinned hams, sixteen to twenty pounds. The meat was delivered as beef chucks, beef round with rump, Spencer Roll, pork loin, fresh, green skinned hams and smoked skinned hams.

These cuts were then boned, trimmed, and tied by the hospital butcher, with the exception of Spencer Roll and round. The meat was kept at least over night in an ice box, temperature 4°C. The average inner temperature of the meat when taken from the ice box was 5°C. It was placed immediately in the oven.

Two methods of roasting were used. The meat roasted without water was placed on a wire rack, nineteen by twenty-three inches with gratings one inch square, in a heavy aluminum pan nineteen by twenty-five by three and one-half inches. For the meat roasted with water, the same type of pan was used, and one pound of hot water per ten pounds of meat was added to the beef cuts, while one-half pound of water was added to every ten pounds of pork. The smoked hams that were cooked in water were cooked in steam jacketed kettles with fourteen pounds of water added for every ten pounds of ham. When an inner temperature between 75° and 85°C. was recorded, the hams were removed from the water. They were then transferred to the oven and roasted with water in the pan.

The inner temperature of the meat was used as an index for the cooking time. All cuts were cooked well done (80° to 85°C.), because of the local

* From the Department of Nutrition, University Hospital, Iowa City. The data here presented were taken from a dissertation submitted by Fay Burnett to the Graduate College of the State University of Iowa, August, 1930, in partial fulfillment of the requirements for the degree of Master of Science.

demands for well done meat. A Taylor oven thermometer, registering 640°F., was used to record the oven temperatures. A short chemical

TABLE 1

Average total results of meat study

Beef and pork

	KIND OF MEAT																					
	Round				Chuck				Spencer roll				Fresh pork				Smoked ham				Pork loin			
																					Roasts		Chops	
Average weight:																								
Raw meat, pounds	61				71				39				70				80				63		45	
Butcher loss:																								
Average per cent bone	26.25				21.80								9.30				9.10				19.6		16.3	
Trimmings	2.02				6.89																—		—	
Average per cent fat	3.58												18.08				17.03				6.1		—	
Average per cent waste	—				8.43																—		—	
Average total per cent butcher loss	31.85				37.22								27.32				26.13				25.0		16.3	
	Cooked without water		Cooked with water		Cooked without water		Cooked with water		Cooked without water		Cooked with water		Cooked without water		Cooked with water		Cooked without water		Cooked with water		Cooked without water		Cooked with water		Broiled as chops
Shrinkage:																								
Average cooking time per pound minutes	28		17		51		39		37		25		36		35		28		22		34		37	8*
Average inner temperature °C	82		84		82		82		84		84		80		85		80		77		78		78	80
Average per cent shrinkage	39		36		36		35		31		48		39		38		27		32		49		42	30
Average total per cent shrinkage	37				35				38				38								45			30
Average weight edible meat, pounds	26				28				26				29				40				33			30
Average weight served meat, pounds	23				25				19				26				36				32			30
Average cooked scraps, pounds	3				3				5				3				4				1			—
Average weight per serving, ounces	2.17				2.67				3.0				2.3				2.4				2.6			2.4
Average number of servings	170				162				107				186				236				202			196
Average number servings per pound cooked meat	7				6½				5½				7				6½				6			6½
Average per cent cooked meat, sliceable	88				89				73				89				90				97			100
Average per cent cooked meat, scraps	11				10				19				10				10				3			0

* Cooking time per chop.

thermometer registering 100°C. was inserted in the center of a piece of meat. Each piece was removed from the oven as the inner temperature reached the desired point.

The meat was hand sliced by the cooks in the serving units as called for, except that which was sent to the wards. This was sliced in the kitchen and sent in an electrically warmed container to the various hospital wards.

Losses in butchering the raw meat averaged thirty-four per cent for beef and twenty-six per cent for either fresh or smoked hams. This butcher loss consisted of an average of twenty-five per cent bone, four per cent trimmings, four per cent waste, and three per cent fat for beef; an average of nine per cent bone and seventeen per cent fat for pork.

TABLE 2

Average calculated results 100 pounds raw meat

Beef and pork

	KIND OF MEAT						
	Round	Chuck	Spencer roll	Fresh pork	Smoked ham	Pork loin	
						Roasts	Chops
Butcher loss:							
Per cent bone	26	21	—	9	9	18	16
Per cent fat	3	—	—	18	17	6	
Per cent trimmings	2	6	—	—	—	—	—
Per cent waste		8				—	—
Total per cent butcher loss	31	37	—	27	26	25	16
Pounds meat ready to cook	69	83	100	73	74	75	84
Per cent shrinkage	37	35	38	38	29	45	30
Pounds cooked meat	43	40	66	41	50	53	62
Per cent scraps	11	10	19	10	10	3	—
Per cent sliceable	88	89	73	89	90	97	100
Average number servings per pound cooked meat	7	8½	5½	7	6½	6	6½
Number servings	280	225	275	265	295	320	408
Average size per serving, ounces	2.1	2.6	3	2.3	2.4	2.6	2.4

The fat and trimmings from all cuts were usable. The losses in butchering were remarkably constant for approximately 4000 pounds of meat studied, which is an indication that the quality of meat purchased was quite uniform.

The shrinkage in cooking was very constant. The average was thirty-four per cent for meat roasted without water, and thirty-eight per cent for that roasted with water. This difference is not particularly significant as the individual range was twenty-seven to forty-nine per cent in the former, and thirty-two to forty-eight per cent in the latter. Smoked ham showed the least shrinkage, twenty-seven and thirty-two per cent

for the two methods of roasting; pork loin showed forty-five and forty-two per cent while Spencer Roll showed thirty-one and forty-eight, the greatest amount of shrinkage for the two methods. The relatively greater shrinkage of Spencer Roll may be explained by the fact that it was a poorer grade of meat, usually cow rather than steer.

Table 1 gives a summary of the average butcher losses, shrinkage, and amount of served meat from the raw meat studied.

The number of servings per pound of cooked meat varied from five and one-half to seven. This variation can be explained by the fact that the meat was hand sliced and by the fact that there was a difference in the amount of meat allowed per serving in the various serving units. Also, the crust on beef roasted without water made slicing difficult, which was not true for pork because of the outer layer of fat. The larger servings were also found in the meat that was habitually served with some fat attached, such as Spencer Roll, beef chuck, and pork.

Table 2 gives the number of servings that may be expected from one hundred pounds of raw meat.

STANDARDS FOR TRAY AND DINING-ROOM SERVICE*

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The first organized application of simplification of standards for equipment occurred during the World War, when it was within the province of the Conservation Division of the War Industries Board to release labor, capital, materials and equipment for war purposes. In accomplishng this, the Board turned to industry with the request that it discard all non-essentials. Huge savings were made and there was great concentration on those things which would readily sell. After the war, industry realized the coördinating influence of the War Industries Board was no longer available.

The trend toward solution of common problems, regarding sizes, shapes, and types of equipment through group action, was stimulated by the publication of a report, "Waste in Industry," prepared by a committee of prominent engineers appointed in 1921 by Herbert Hoover, President of the Federated American Engineering Societies (now known as the American Engineering Council). The report of this Committee, issued a year later, showed that in six typical industries of the country the average loss of material, labor, energy and human effort amounted to 49 per cent. The Committee found that one of the outstanding causes of waste lay in too great a variety of sizes of individual commodities produced for stock.

Industry, wishing to conserve and augment the gains made in simplification during the war, requested the Department of Commerce to provide a peace time substitute for the War Industries Board. In accordance with that request, the Secretary of Commerce late in 1921 established in that department the Division of Simplified Practice, as a unit of the Bureau of Standards. This division is a centralizing agency in bringing together producers, distributors, and consumers, on a purely voluntary and self-elective basis, and in supporting the recommendations of

* Presented before the American Dietetic Association, Toronto, September 8, 1930, as an introduction to a moving picture illustrating the successful use of standards.

those interests when they shall mutually concur upon simplifications of benefit to all concerned. Any group in any branch, production, distribution, or consumption, may secure the coöperative service of the Division upon request. American housewives, representing a vast army of buyers, are well served by articles in the list of active Simplified Practice recommendations, according to a statement of the Department of Commerce issued in May, 1930. As the movement touches appropriations and budgets of whole industries, the family pocketbook is affected. The following are a few examples of the results of Simplified Practice-recommendations: bed spring and mattress dimensions, from 78 combinations to 4; bed blankets, from 78 combinations to 12; tinware, galvanized and japanned ware, from 1154 combinations to 873; sterling silver flat ware, from 190 combinations to 61; salt packages, from 35 combinations to 19; grocers paper bags, from 6280 combinations to 4700; milk bottles, from 49 combinations to 4; milk bottle caps, from 10 combinations to 1; tacks and small nails, from 421 combinations to 121; surgical gauze, from 15 combinations to 7; preserve jars, from 36 combinations to 8; jelly glasses, from 24 combinations to 7.

Application of the principles of simplification are to be found on every hand. Many of them have come through the initiative of individual firms or groups; others, nearly 125, have materialized as a result of the concerted activity of entire industries working through the Division of Simplified Practice as a clearing house.

Economists in no way connected with the Federal Government estimate that simplification as practised today by industry is saving for all interests over $500,000,000 a year. Economies gained by the manufacturers and distributors, in any competitive business, must be passed to the consumer in the form of reduced prices, more goods for the money, or better values.

In establishing a Simplified Practice recommendation, manufacturers and distributors do not urge their customers to struggle along with less than the former variety; their purpose is to determine the shortest possible list of stock items which will adequately cover normal demands, a list that can be revised periodically to conform with changing conditions. If the producers can definitely determine where to emphasize their manufacturing and sales policies and where to retrench, they will be able to reduce overhead expense and maintain in a fluid state that capital which formerly remained "frozen" in slow moving inventory.

Both large and small buyers of commodities can help the various industries succeed in their "house cleaning" by encouraging the develop-

ment of simplified lines, and by adhering to these lists, once they have been promulgated. Without that stimulus from the consumers of goods, the manufacturers and distributors cannot make successful their efforts to eliminate waste; they can but stumble along on a hit-or-miss basis, with consequent expense to all concerned.

Interest in the practice of simplification, with regard to hotel chinaware, originated through an address by a representative of the American Hotel Association before the 1925 annual convention of the American Ceramic Society at Pittsburgh.

The initial attempt toward the simplification of chinaware was effected through the efforts of the American Hotel Association, the American Vitrified China Manufacturers Association, distributors, and other interested parties co-operating through the Division of Simplified Practice of the Department of Commerce, at a general conference held at Washington, in 1923. A reduction in sizes and types of hotel chinaware, from 700 varieties to 192, a 73 per cent reduction, resulted. This prompted the National Restaurant Association at their annual convention in Chicago to ask the same service in behalf of the restaurant and cafeteria field. It was found that 668 combinations comprised the stores from which orders could be filled, and that 69 per cent of the business of one large manufacturer was concentrated on forty-eight items. In other words, 620 varieties were being manufactured and stocked to satisfy a 31 per cent demand. Or, to visualize this same condition in the restaurant trade, out of one hundred patrons, sixty-nine will avail themselves of the entire menu, using only forty-eight items of chinaware, while the remaining thirty-one patrons will necessitate a service consisting of 620 items. In 1925, the National Association of Dining Car Superintendents met with representatives of pottery manufacturers at the Department of Commerce to consider the possibility of limiting their articles to the basic list of 103 already in use for the hotel, restaurant and cafeteria trade. Eleven items were added.

The same day, representatives of the American Hospital Association met this same group at the Department of Commerce where the combined list of 114 items already adopted by the hotel, restaurant, cafeteria and railroad trades gave the basis for discussion of types and varieties essential for hospital service. These items were adopted with the addition of the open oval ribbed sugar tray, making a total of 115 items. A preliminary conference representing approximately 90 per cent of the sterling silver flatware manufacturing capacity of the United States met in New York in 1925 to consider what items could be eliminated from their stocks

which would be beneficial to all interests. A simplification program was proposed, which it was felt would be supported by the individual manufacturers.

A general conference was held in Washington in 1926, attended by representatives of manufacturers, distributors, and consumers. The latter were represented by the Bureau of Home Economics, Department of Agriculture, American Home Economics Association, and American Hospital Association.

The resulting advantages of simplification were: number of weights eliminated and standard terminology for the three weights retained; numerous items standardized; new patterns limited to one every two years for any one manufacturer.

From January 1914 to January 1924, nine manufacturers, constituting the flatware division of the Sterling Silver Smiths Guild of America turned out 108 new patterns, 40 per cent of which have since been discontinued. With the two year program, this would make the maximum number of these same nine manufacturers, forty-five patterns, an elimination of about 60 per cent. Estimating a single set of dies at $30,000, and eliminating sixty-three patterns in ten years, a saving of $1,890,000 would be made, plus the saving resulting from not making so many dies. A saving in die production cost alone would be over $2,000,000. The greater saving is probably in the release of money formerly tied up in carrying stocks.

In the case of the manufacturers, it is estimated that the cost of stocks that have been made up and carried at the factories for several years after the introduction of a flatware pattern, is nearly $60,000 a pattern. Therefore, considering only two items, die production cost and capital tied up in stocks at the factories, a saving of $5,780,000 is estimated on the sixty-three patterns.

From generation to generation dies of discontinued patterns have piled up at the various manufacturing plants. For many of these there has been no call over long periods of years. With no definite understandng between the manufacturers, the public at large and the trade in general have expected these dies to be kept indefinitely in the event a single teaspoon might be ordered in ten or twenty years. This necessitated providing vaults, storage space, locating a needed die, interrupting general factory processes to manufacture a single item. With the new plan, patterns are allowed to run their full course and are then put on the "discontinued list" for an additional five years, giving ample time for matching sets.

Dietitians must make a definite contribution toward obtaining and maintaining standards in appointments and equipment for their departments, whether they be in tea rooms, school lunch, commercial, industrial, or hospital positions. There are common denominators which all can consider and which should be of mutual help, whatever the individual problem. One must give the entire situation careful study and have a better knowledge of the subject in order to avoid needless waste.

EDITORIAL

Some Christmas Feasts

Christmas is now, as it has been through the years, a time of gala feasting. The storybook tales of children without food at Christmas seem even more tragic to young readers than stories of hunger at other times. An interest in Christmas festivities through the ages prompted the Misses Kirk, Jackson and Lemmon of the Philadelphia Dietetic Association to present before their Association the story of some of the customs and celebrations. Since the Feast of the Nativity was designated to be celebrated at the same time of the year as the Saxons and other Northern nations had kept one of the most famous festivals, with religious rites, feasting, drinking and dancing, it is only natural that some of the elements of the pagan holiday should still cling to the Christian one. The profusion and variety of provisions astonished the guests of Henry II at his Christmas feast in 1171. According to the record, the flesh of cranes was one of the dishes, new to the court, which was then served by the order of Henry. Thomas North describes a dinner he had in London on Christmas 1731. He mentions that he can tell less than half of the bill of fare, which included turkeys, geese, capons, puddings of a dozen sorts more than he had even seen before, besides brawn, roast beef, minced pies, and plumb pottage. He comments on the mirthful spirits and happiness of all at that season. Washington Irving and Dickens have given us vivid pictures of English Christmas dinners. Food and drink were also expected as part of other Christmas customs, carolling and mumming. Hardy's sketches of the latter custom seem to portray clearly the spirit of the season, as well as the manner of the plays and players.

The combination of food, drink, dancing, singing, and acting, naturally introduced a riotous and rollicking spirit into much of the Christmas activity. This attitude was most objectionable to the Puritans who fought against the observance of Christmas on these shores. It was during this season that they arrived, some with memories of past festivities, but all of them believing that in the new country all was to be different. On that first Christmas day the erection of the first house for common use

was started. On that night, after a day of hard toil, the one indication of their Christmas tradition was that, instead of the water they had been drinking, the shipmaster granted them beer. It seemed impossible, however, to maintain an attitude of contempt or hate in such a naturally joyous season as Christmas, so our next picture, the Christmas of 1783 at Mount Vernon, is a much more pleasant one. The war was over, and it was to be Washington's first Christmas at home for nearly nine years. The bell for dinner was rung at quarter of three, and at three o'clock the dinner was served. A merry assemblage flocked into the dining room, for this was to be no function of state, but only a happy family gathering. The General was seated next to Mrs. Washington at the foot of the table, while Col. Humphreys, the General's Aide, sat at the head and carved, although Mrs. Washington did some of the carving from her end of the table, and Col. Smith from his seat at the side. On the table were doubtless spread: succulent roast pig, a small one, but fattened on live oak acorns, a boiled leg of lamb, roasted fowl, beef and peas, lettuce, cucumbers, puddings and tarts. There was, of course, fish caught in the streams on the estate. And turkey, certainly, stuffed with pecan nuts. On a side table were arranged all varieties of pickeles, Smithfield ham, fried oysters, a saddle of mutton, a round of beef, and a bowl of chieken salad. Accompanying the steaming well-browned turkey were canvasback ducks shot in the lagoons near the house, venison, easily killed in the adjoining woods, snowy pyramids of rice, brown sweet potatoes, with sugar oozing out of their jackets. And for dessert there came sillibut, tipsy cakes, charlotte russe, mince pies, plain cake and fruit cake, and the famous and traditional plum pudding, flaming with magic fires which must be left to burn out of themselves lest some good that they held in their fiery hearts should fail to be diffused throughout the coming year.

About fifty years ago, an interesting custom prevailed at many hotels and cafés, where egg-nog and lunch were distributed. A table the length of the room was spread and furnished with twenty made dishes peculiar to the Christmas cuisine. Each dish was labelled and attended by a black servant who served its contents on very small white gilt-edged plates. At the head of the table was the vast bowl of egg-nog.

While customs have naturally changed in two thousand years, Christmas is still primarily a season of gladness. Although the lavish meal of the past seems no longer practical nor customary, it is justly appropriate that the Christmas dinner is expected to be the most memorable meal of the year.

Nutrition Problems Today and Yesterday

In the September issue of *The Red Cross Courier,* Judge John Barton Payne, Chairman of the American Red Cross, has discussed in an interesting fashion a phase of the food question, "Why must we be persuaded to eat?" In speaking of the recent drought, he reviews the food predicament of the Southerner during and after the Civil War. Before the War, simple foods had been plentiful—milk, eggs, vegetables, orchard fruits, and home-slaughtered stock. Meals were served at regular hours. When the War came, however, the invading armies needed the livestock, which were soon consumed. Because of the blockade, all imported products were unavailable. Dried raspberry leaves were used for tea and parched rye for coffee. It was learned, through the stern discipline of war, that too much food, especially too much rich food, is as harmful as too little food. More vegetables were eaten, and such greens as sorrel, chickory, mustard tops, beet and turnip tops, were utilized. The late 60's presented their nutrition problems, though they were not spoken of in those terms.

Judge Payne quotes an old ditty: "A woman, poor thing, is as old as she looks; but a man is as old as he feels." If one is really as old as he feels, then it is good sense for him to try to feel his best. Feelings are influenced by health, and health, in turn, depends much upon right habits of living, upon right food habits. There is a sound basis for the belief that the key which will lock the door against most of the ills that flesh is heir to is a knowledge of food selection and nutrition. Red Cross nutritionists are leading in instruction on making the right use of the right foods.

It is emphasized that malnutrition is as frequently found in the homes of the rich as in those of the poor. Results for both classes are the same; lowered resistance to disease, lower marks for the children in school; physical unfitness. Facts like these, constantly kept before the people, awaken a consciousness of the necessity of forming right food habits in children during their formative years. But it is not always so easy to induce adults to do the right things for themselves. Here is where the knowledge of how to make new foods, or foods against which they are prejudiced, appetizing, is invaluable. It is in this field, Judge Payne concludes, that the opportunity lies for the Red Cross nutritionist.

Efficiency in Dietary Departments

An article, "Dollars and Diets" by John Bell Williams and Gertrude F. Brown appears in the March issue of the *Bulletin of the American Col-*

lege of Surgeons. Since hospitals usually have difficulty in making total incomes meet total expenses, and in most institutions the dietary department spends from 20 to 25 per cent of the gross income, the authors outline in detail the economical operation of dietary department in a 100-bed hospital.

The first essential, the authors claim, in the successful management of a dietary department is the employment of a qualified dietitian. The ideal dietitian is one who is neither overeducated or undertrained. The overeducated "know science and the psychology of servants, but nothing of good gravy;" the undertrained know good home cooking, but nothing of special medical diets; the ideal understands the science of feeding together with the business of buying and management.

Having found the dietitian, the next step is to determine how much responsibility shall be placed upon her. On this subject, the concensus of opinion appears to be that all hospitals, except very large ones, should place the chief dietitian in entire charge of the whole department with authority to buy and bargain, and to hire and fire. With this authority, she is then held strictly responsible for the entire management.

In order to provide meals in the most efficient manner, some years ago the dietary staff of St. Luke's Hospital, Richmond, began formulating a book of diets or diet lists for use in that institution. In this book over twenty-five types of diets are included. These diets may be referred to by members of the staff, the floor or special nurses, the department of dietetics and frequently by the patients themselves. Under this plan, the doctor has only to write on the patient's chart the name of the special diet the patient is to receive. This is sent to the diet kitchen where the pupil nurses prepare special and all soft diets under the direction of the dietitian.

The next problem, according to the writers, is to put the administration of the department on a strictly business basis. This requires the keeping of definite records, so that the dietitian may know every day exactly what she is about. The necessary "paper work" is more effective if kept in the dietitian's own office. This part of the work might be done by the hospital accountant, who should furnish the dietitian with information of previous expenditures over a specified period of time, thus indicating a dietary budget by weeks, months and years. It is well to have these cost figures prepared by the accountant as a check against the dietitian's reports and for presentation to the board of directors; but by requiring the dietitian to keep daily reports herself, independent of the accountant, she has accessible a more constant knowledge of market

conditions, of buying, and of materials on hand; thus a policy of sensible economy can be put into daily practice. Fruits, canned goods, and all other materials that are attractive to special nurses, or easily destroyed by handling, should best be kept under lock and key, with the dietitian held responsible for what amounts practically to a daily inventory.

The dietitian's records are many and varied, beginning with the daily report, advancing to the weekly, semi-monthly, monthly, quarterly, semi-annually, and lastly to a completed yearly report. A system that has been built up at St. Luke's Hospital has proven successful. It is based upon the usual allowance of so much money for food for each meal served each person each day. This figure must be determined by the hospital authorities and usually depends upon the type of institution. Since the personnel represents a fairly constant figure, it is necessary for the dietitian to receive daily reports of the number of patients requiring diets on the floors, including the type of diet for each patient. The dietitian must also receive a requisition from each floor for the supplies needed for extra nourishment; also a report from the superintendent outlining the number of special, staff, and pupil nurses on day and night duty, together with the total number of patients in the institution. A consolidated report is then prepared, from which the dietitian knows how much food to buy for each type of diet, and from which the chef's bulletin is also made. From the dietitian's record, the daily census is prepared for the hospital director. The most important feature of this report is that it shows the number of meals served for breakfast, dinner and supper in the staff's, nurses', servants', and patients', dining-rooms, and at the midnight supper. This report is the key to cost calculations.

On daily record, also, arranged in a classified card index, is the list of purchases and copies of invoices. This record is of value in determining what has been spent for any given article in the past, and what may be expected in the future. On a long cost sheet, the amount of money spent each day is recorded. From this record and the census sheet, the cost of each meal served each person can be determined. A weekly average is important, so that a high average one week may be equalized shortly thereafter. Yearly records are also kept for comparison and check.

The authors emphasize that one of the greatest errors of dietitians is for them to *think* that their finances are all right. Under this plan, it is possible for them to *know* when they are wrong. The difference of a fraction of a cent on each meal served each person each day may determine whether the hospital economics are a success or a failure. Giving due credit to the importance of getting full value for money spent, the

dietitian must realize, however, that it is just as necessary not to underfeed by saving some of this allotted sum as it is not to overfeed by spending more. In other words, she should give the best quality possible and keep strictly to the figure adopted.

With regard to the serving of the food, Dr. Williams and Miss Brown emphasize the fact that no matter how efficient the records, the purchasing, and the theoretical knowledge of the situation, the work is a failure unless the food is prepared and served invitingly. There is no doubt that recollections of the food constitute one of the patient's most lasting memories of a hospital.

How Gullible is the Public?

After hearing the stimulating discussions at the recent Convention with regard to the status of the dietitian, it comes as something of a shock to note in the New York *Times* of September 23, 1930, a prominent advertisement under the auspices of a leading department store. Here is announced the arrival of Mr. R. Avron Kartyshai, "Physiologist, Dietician, and Cosmetician," who will lecture every Tuesday and give daily consultations on personal problems of face, hair and make-up. "Among the topics he will very scientifically discuss are the following: beauty secrets that are no secrets; beauty related to diet, body and mind; love and its relation to beauty; fads in diet and sensibility in gaining or reducing; four specific types analyzed for diet and make-up." One may be assured that numerous satellites appeared at this shrine of wisdom.

Apropos of these more or less sensational methods of gathering in the idle, unwary and opulent female, the New York City Department of Health is making an effort to come to her rescue. A "Rogues' Gallery" has been compiled, with data concerning more than 25,000 medical quacks, manufacturers of spurious "cure alls," peddlers of nostrums, "inventors" of diet, exercise, and other worthless systems. This index has required more than six months for compilation and has been installed in the Division of Legal Medicine, Department of Health, where it will be under the charge of Dr. S. Dana Hubbard, Chief of the Division. The "gallery" will be used in tracing complaints filed by victims of quacks; in preparing cases against violators of the medical and drug laws, and in all other legitimate channels. It is also hoped that it will be of use in ridding the radio broadcasting field of medical quacks and other charlatans.

M. P. H.

CURRENT COMMENT

Dietitians Feed the Byrd Expedition

An interesting aspect of the Byrd Antarctic Expedition is discussed by Dr. Dana Coman, Medical Director of the Expedition, in the Washington *Star* of October 5th. Dr. Coman credits the well-being of the forty-two men and the safe return of the expedition to the careful planning toward the good health, through proper nutrition, by the leaders of the expedition. Every precaution was taken against scurvy and other conditions which might result from faults in the nutritional plans. The provisioning of the expedition followed a dietary basis worked out largely on the advice of Professor E. V. McCollum. The statistical computations were made by Miss Phyllis Rowe and Miss Kathleen Lewis of the Dietary Department of Johns Hopkins Hospital. Dr. Coman comments that not only did this elimination of guesswork save considerable expense, but with an economical larder it provided a balanced ration furnishing the necessary calories, the essential food factors, minerals and roughage, with an opportunity for variety sufficient to eliminate many of the diseases former large expeditions have suffered in polar regions.

Veterans' Legislation Affects Dietitians

Miss Clyde Schuman has recently informed the Journal of an interesting bit of news which she has learned through War Service of the American Red Cross. According to Miss Schuman, on July 2, 1926, additional legislation for the benefit of women citizens was passed. The World War Veterans Act, as amended on that date, contains a provision that the U. S. Veterans Bureau shall pay to "women citizens of the United States who were taken from the United States by the United States Government and who served in base hospitals overseas or, in the discretion of the director, separately to his or her dependents, compensation" for death or disability incurred in line of duty. This legislation covers dietitians and other women citizens who served in a civilian capacity in base hospitals and who were taken by the United States Government to whatever foreign country in which they served. Claims should be filed on Veterans Bureau form number 526, the same form which is used for regularly enlisted personnel, and evidence should be submitted proving that the disability from which the claimant is suffering and for which claim is being made is due to service.

In writing this, Miss Schuman says that War Service has advised her of its willingness to help on any specific cases of enrolled Red Cross

dietitians who are presenting claims. Furthermore, she states that claims for this group should be filed through the local chapters of the American Red Cross if they desire assistance on their claims, or directly with the Regional Office of the U. S. Veterans Bureau located within the state in which they reside.

A Note from the Netherlands

Dr. Storms' committee should feel complimented by the marked interest that has been aroused by a recent item in the Current Comment section of the JOURNAL, with reference to the status of dietitians in Government services. Among the comments received was a letter from Professor E. C. van Leersum, Director of the Netherland Institute of Nutrition, Amsterdam. Dr. van Leersum refers to the use of the expression, "sub-professional group," and asks just what that denotes. He states that he is trying to get the governmental and medical authorities of his country interested in the profession of the dietitian, and would be glad to receive literature on the subject of the American dietitian.

Recent Information from the Department of Agriculture

Home canned meats. Many farm families in the drought areas with no feed for their livestock and little food for their families are facing a hard winter. In this emergency the farm and home practices long recommended by the Department and the State agricultural colleges are proving their worth. The canning of cull animals in Arkansas, Louisiana, Oklahoma, and the other Southern States in the drought area is serving the twofold purpose of providing food for the family and saving feed for the better animals left. Farmers are urged by the State and Federal specialists to cull their flocks and herds and to can when possible enough meat to supply the family through the winter and spring.

Grades for peas and corn. Government grades that deal with quality in canned corn, both whole grain and cream style, and in canned peas, have been promulgated by the Department, following tentative use over a period of three years. The grades for canned corn and canned peas are the result of much work with the cannery, wholesale and retail grocery, and chain store trades, as well as with canned-food brokers. The grades have been tried out extensively in commercial fields. In the last three years, several million cases of canned foods have been graded under them and stored in licensed warehouses.

The grades for canned peas were adopted as the official Wisconsin State grades more than two years ago, and it is expected that at least

one-third of the Wisconsin pack of peas, which will approximate nine million cases this year, will be graded in accordance with the grades.

Bureau officials in charge of canned-food grading report helpful support from the canning trade. They say the National Canners Association and various sectional associations have been keenly alive to the need for official grades. The Tri-State Packers Association, embracing the canners of the States of Delaware, Maryland, and New Jersey, has also been actively identified with the movement to develop official grades.

Dairy products in chocolate manufacture. Increases in the quantities of all dairy products, except evaporated milk, used in the manufacture of milk chocolate and chocolate coatings, are reported for the year 1929 as compared with 1928, by the Bureau of Agricultural Economics. The quantity of whole milk used in the manufacture of these products was 234,709,024 pounds in 1929, compared with 175,456,380 pounds in 1928.

Revision of names of U. S. dressed poultry grades. Changes in the terminology of the tentative United States Standards and grades for dressed poultry have been announced by the Bureau of Agricultural Economics, following a conference with representatives of poultry packers, dealers and retailers. The new grade names are: U. S. Special, U. S. Prime, U. S. Choice, and U. S. Commercial. U. S. Special corresponds to the previous grade of U. S. Prime; U. S. Prime to the previous grade of U. S. Choice; U. S. Choice to the previous grade of U. S. Medium, and U. S. Commercial to the previous grade of U. S. Common. The new terminology became effective October 16.

Meats as sources of vitamin G. Vitamin G, growth-promoting factor for animals and man, is found to be from five to eight times more abundant in beef liver, pork liver, and beef kidney than in lean beef, pork, and lamb, according to a series of tests recently finished by Ralph Hoagland and George G. Snider. The experiments involved the feeding of young albino rats which were kept in separate cages and weighed regularly. All comparisons were made on the basis of air-dry, fat-free materials. The rats were first fed a basal ration lacking only in vitamin G until growth ceased, when meat or meat by-products were added to supply the growth-producing factor. Lean beef, pork, and lamb appeared to contain approximately the same quantities of the growth-producing vitamin G, and when comprising from fifteen to twenty-five per cent of the rats' rations, resulted in excellent growth. Beef spleen appeared to contain as much of this vitamin as beef. The tests indicated that three per cent of beef liver or pork liver and slightly less of beef kidney, in a rat's diet, furnished an ample supply of vitamin G for rapid growth. The minimum

quantity necessary for normal growth is probably considerably less than the proportions indicated. Among other foods known as good sources of vitamin G are egg yolk, salmon, wheat germ, bananas, leafy vegetables, and milk. These are not, however, comparable with each other in the amount of vitamin supplied, but all furnish it in appreciable amounts.

Storage stocks of butter, poultry and meats below five-year average. Total cold storage holdings of creamery butter, poultry, meats, and lard on October 1 were less than holdings on October 1 a year ago, and below the average holdings on that date for the past five years. Stocks of creamery butter on October 1 are reported at 130,753,000 pounds compared with 158,541,000 pounds on October 1, 1929, and a five-year average of 134,704,000 pounds on that date. Total holdings of frozen poultry are given as 46,912,000 pounds compared with 61,976,000 pounds last October 1, and a five-year average of 47,574,000 pounds. The quantity of meats in storage is reported at 592,704,000 pounds compared with 732,556,000 pounds a year ago, and on October 1 five-year average of 644,459,000 pounds. Lard stocks show a marked difference in that holdings on October 1 were 59,530,000 pounds compared with 153,690,000 pounds last October, and a five-year average of 115,188,000 pounds. Holdings of case eggs are reported at 9,169,000 cases compared with 7,195,000 cases a year ago. There were 496,000 barrels of apples in storage October 1 compared with 735,000 barrels a year ago; 1,956,000 boxes of apples compared with 901,000 boxes last year, and 1,800,000 bushel baskets of apples compared with 1,793,000 bushel baskets last year. Frozen and preserved fruits in storage aggregated 80,781,000 pounds on October 1 compared with 61,348,000 pounds a year ago.

Canning quality of peaches. Peach canners in the East are faced with the problem of getting the fruits ripened on the tree but harvested before they are too soft to hold their texture. Scientists of the Department have found that varieties of peaches grown in the East soften so rapidly in ripening that individual peaches remain in ideal canning condition for not more than 24 to 72 hours. Prior to this they are lacking in flavor and color; later they are so soft that they break down in the canning process. Peaches should be canned on the day picked unless cold storage is available. When a peach is removed from the tree before it is soft-ripe, it never attains the rich flavor characteristic of the variety at its best. Flavor improves during the ripening process partly as the result of a progressive increase in sugars and a decrease in acidity and astringency, partly by progressive formation of flavoring substances, and partly by the solution of the middle layer of the cell wall so that the contents of

the cells come in closer contact with the tongue. A detailed report of this study has been printed in Technical Bulletin 196-T, "The Canning Quality of Certain Commercially Important Eastern Peaches," which can be obtained from the Office of Information, U. S. Department of Agriculture, Washington, D. C.

"Truth in meats" service is popular. Federal grading and stamping of beef on the basis of quality has become one of the popularly commended services. As yet, only the classes steer and heifer beef and the grades Prime, Choice, Good, and Medium are used, but this list may be increased to include the lower grades. Mr. Davis points out in this connection that the bulk of the beef now on the market is of Medium grade, a considerable proportion is of Good grade, a lesser quantity is of Choice, and only a very little Prime is available.

BOOK REVIEWS

The Relation of Diet to Health and Growth of Children in Institutions. Child Development Monogaphs, No. 2. By Mary Swartz Rose and Cora E. Gray, with the coöperation of Katharine L. Foster. New York City: Bureau of Publications, Teachers College, Columbia University.

Assuming the thesis that "dependent children" "who must depend for their livelihood and success entirely upon their own efforts and that at an early age" have greater need than others of sound constitutions and fine physical development, this monograph reports studies of the diet in relation to health and growth in four child-caring institutions.

Using the inventory method in two institutions keeping adequate records, and weighing raw food, cooked food and residues in two, the investigators determined the per cent of total calories furnished by each of six food groups, viz., (1) foods from cereal grains, (2) milk, (3) fruits and vegetables, (4) fats and oils, (5) sugars and sweets, (6) eggs, cheese, meats and other flesh foods. Since each group makes certain typical contributions, such analyses, checked against the standard distribution proposed for a dietary of moderate cost, showed the probable defects in the diet. Studies of gains in height and weight of the children over periods of one or more years showed that the best physical progress was made by the highest percentage of children in the two institutions in which the diet was "liberal in quantity and also excellent in quality." The monograph thus joins the small but important list of dietary studies which demonstrate the relation between diet and physical development of children in institutions.

The authors discuss factors in the food preparation other than its quantitative aspects which make for adequate food intake. They also apply their interesting and usable method of apportioning food by distribution of calories among typical food groups to the construction of a three weeks dietary. Quantities of food are listed for three different levels of energy requirements. The menus can be provided at an average cost not to exceed forty cents per capita per day. The monograph is valuable for all persons concerned with the health and feeding of large groups.

MARY DE GARMO BRYAN.

Diet in Disease. By George A. Harrop, Jr., M.D. Price $4.00. Philadelphia: P. Blakiston's Son and Co., 1930, pp. 404.

This text has been written in an endeavor to give the medical student some understanding of the principles of nutrition and a working knowledge of dietetics in order to treat disease, and outline dietaries for the sick. Dr. Harrop believes that too often the medical student is largely left to his own resources or must depend on complicated diet lists, too involved to be of practical value. "Diet in Disease" embraces the material used by the writer in lectures, ward rounds, and clinics to the third and fourth year classes at the Johns Hopkins Medical School on the use of diet in disease. The general principles of nutrition, having particular bearing on clinical dietetics, together with a brief account of foodstuffs and their place in the diet, are outlined. Dr. Harrop believes that the medical student should have some knowledge of preparing certain foods so that he may be better informed, should information be sought by the patient or his family. The information is presented in a concise form, and should prove readily available for use as a reference for the busy physician and dietitian.

M. P. H.

Fundamentals of Dietetics. 2nd Edition. By Bertha M. Wood, and Annie L. Weeks, Philadelphia: W. B. Saunders Co., 1930, pp. 243.

This second edition of a textbook first published in 1926 is planned for the average course in dietetics in an average school of nursing, and its length and general style are well suited to its purpose. The division into lessons instead of chapters will aid greatly in planning the course, and the carefully worked out lesson plans will save the time of the dietitian who teaches. This arrangement will have the disadvantage of lack of elasticity. It also shifts the emphasis on certain subjects to fit the time allowance rather than their importance in the science of nutrition. Because of the needs of cookery classes, three lessons have been devoted to proteins, while not a single whole lesson is given to vitamins, which are very briefly and inadequately discussed in one of the lessons under the head of proteins.

It is unfortunate that this condition was not remedied in this new edition, by the deletion of certain material which has only a local application in a limited number of hospitals, thus making space for a discussion of minerals and vitamins more in accordance with their present position in the field of nutrition. It is also to be regretted that certain inaccuracies were not corrected and several passages brought up to date before the new printing.

Dietetics and Nutrition. By Maude A. Perry, B.S. Price $2.50. St. Louis: C. V. Mosby Co., 1930, pp. 332.

This textbook for nurses is a valuable addition to the list of available books on the subject, and will be needed on the reference shelves of the better schools of nursing. It is concise, accurate, and up-to-date. It has the usual two sections, one on normal nutrition and one on diet in disease. To these the author has added a useful appendix giving diet lists, tables of food values, recipes, and other material. The removal of this matter from the text to the appendix greatly enhances the convenience of the book for reference use.

It is unfortunate that more attention was not paid to normal nutritional requirements in the planning of special diet menus, in order to give the student a conception of the importance of this phase of the work, but dietitians will nevertheless find this text a valuable aid in teaching and a useful addition to their own libraries.

CURRENT LITERATURE

KATHLEEN M. LEWIS

American Journal of Diseases of Children

Vol. 40, July, 1930

The influence of feeding on certain acids in the feces of infants: clinical considerations. J. R. Gerstley.—p. 27.

*The feeding of premature infants. M. C. Hill.—p. 59.

Nephrosclerosis (chronic intestitial nephritis) in childhood, with special reference to renal rickets. A. G. Mitchell.—p. 101.

Vol. 40, August, 1930

*Buffer capacities of various milks and proprietary infant foods. G. E. Holm and B. H. Webb.—p. 260.

*Nutrition of children on a mixed and on a vegetable diet. D. E. Lane and F. H. Bosshardt.—p. 285.

*The nutrition of sick children. M. G. Peterman and I. Hug.—p. 305.

Nephrosclerosis (chronic interstitial nephritis) in childhood, with special reference to renal rickets. A. G. Mitchell.—p. 345.

Vol. 40, September, 1930

*Metabolism studies in nephrosis, with special reference to the relationship of protein intake to nitrogen retention, edema and albuminuria. D. M. Cowie, K. M. Jarvis, M. Cooperstock and A. Nakao.—p. 465.

A new infant feeding chart. R. W. Teed.—p. 503.

The feeding of premature infants. The important factors governing the care of such infants are discussed. A formula consisting of three parts breast milk and one part of evaporated milk gave satisfactory results.

Buffer capacities of various milks and proprietary infant foods. Experiments on human, cows', goats' milk, and proprietary infant foods, were made. Curd formation is directly related to the buffer action, while the albumin content greatly influences the type of curd. Out of five proprietary foods, but one approached breast milk in respect to the hydrogen concentration. The nature of the curd found is of greater importance than is the buffer capacity in infant feeding.

Nutrition of children on a mixed and on a vegetable diet. Evidence is presented that children from seven to fifteen years of age grow as well on a diet of carefully selected vegetables as they do on a similarly well-planned, milk-meat containing diet.

Nutrition of sick children. From a nine months study of the food requirements of thirteen children suffering from tubercular disease it is evident that at least an allowance of fifty per cent above the basal requirements should be made. The effects of concentrated foods, especially malted milk prepared in different forms, are also considered.

Metabolism studies in nephrosis, with special reference to the relationship of protein intake to nitrogen retention, edema, and albuminuria. In the treatment of nephrosis the high protein diets have proved efficacious. In the case reported of a six-year-old child, edema disappeared when seventy grams of protein were included in the diet. There was also a high albumin output. The basal metabolism was consistently high, reaching the maximum at times when the edema was highest also.

American Journal of Public Health

Vol. 20, July, 1930

Technical supervision in the production of highest quality milk. J. G. Hardenbergh.—p. 605.

*Bacteriological control in commercial canning. E. J. Cameron and H. M. Loomis.—p. 741.

Vol. 20, August, 1930

Significance of thermophilic bacteria in pasteurized milk. L. A. Rogers and W. C. Frazier.—p. 815.

Hygiene of the towel. H. D. Pease and L. C. Himebaugh.—p. 820.

Vol. 20, September, 1930

Mental hygiene in a public health program. J. L. McCartney.—p. 943.

Bacteriological control in commercial canning. Little food is contaminated before it reaches the cannery. Investigations indicate that thermaphilic contamination is due largely to canning equipment and refined sugar.

American Journal of Physiology

Vol. 94, July, 1930

*Glycogen formation in rats. Diets containing about sixty per cent of the total caloric value in the form of starch, sucrose, lard and casein. E. M. Greisheimer and O. H. Johnson.—p. 11.

The rôle of the central nervous system in the control of pancreatic secretion. The secretion of insulin during hyperglycemia. J. LaBarre.—p. 13.

*Changes in hens' blood produced by a diet of sprouted soybeans. A. A. Horvath.—p. 65.

A comparison of the effects of epinephrin on carbohydrate metabolism in the cat and rat. G. S. Eadie.—p. 69.

*Effects of diet poor in inorganic salts on certain organs and blood of young rats. A. H. Smith and R. V. Schultz.—p. 107.

Vol. 94, September, 1930

*The effect of liver on the blood sugar level and on the sugar excretion of depancreatized dogs. M. T. dePencier, S. Soskin and C. H. Best.—p. 548.

*The carbohydrate metabolism of the heart. M. B. Visscher and A. G. Mulder.—p. 630.

Glycogen formation in rats. Diets containing about sixty per cent of the total caloric value in the form of starch, sucrose, lard, and casein. Various types of diets affect the liver glycogen. When sixty per cent of the calories were in the form of cornstarch, the liver glycogen was the same as with a balanced diet. When sixty per cent of the calories were in the form of sugar, a higher liver glycogen resulted. A sixty per cent casein diet gave a decrease in liver glycogen. The muscle glycogen remained the same in all cases.

Changes in hens' blood produced by a diet of sprouted soybeans. Hens on a sole diet of sprouted soybeans did not develop gout, possibly because of the high fat soluble vitamin content of the soybean. Changes in clotting time, uric acid and globulin-albumin rates of the blood were noted. Differing from humans, a high fat diet did not produce a noticeable rise in blood uric acid of hens.

Effect of diet poor in inorganic salts on certain organs and blood of young rats. Rats fed diets poor in inorganic salts do not increase in body weight, though the body and tail length are greater than normal rats. There are definite changes in the organs. The red blood cells are smaller than normal and the total hemoglobin is less.

The effect of liver on the blood sugar level and on the sugar excretion of depancreatized dogs. Raw liver does not contain a blood sugar reducing substance active when taken by mouth; the blood sugar of normal dogs was not lowered nor was the sugar excretion of depancreatized dogs. This work does not substantiate the observations of Blotner and Murphy.

The carbohydrate metabolism of the heart. After six hours' work, the same amount of glycogen is found as in the normal unworked beast. There is a lowering of the reducing substance in the heart muscle coincidently with the lowering of the reducing substance in the heart blood glycogen. Comparison of the oxygen consumption with glucose utilization shows that the heart-lung preparation uses heart glycogen or blood glucose for not more than sixty per cent.

Archives of Pediatrics

Vol. 47, June, 1930

Summer diarrheas in infancy and early childhood. R. A. Strong.—p. 344.

A practical method in infant feeding. R. R. Scobey. —p. 355.

*The brain-liver weight ratio and the infancy and childhood history of epileptics. S. M. Weingrow. —p. 392.

Vol. 47, July, 1930

The use of phenobarbital in infant feeding. E. J. Barnett.—p. 452.

Vol. 47, August, 1930

*Basal metabolic rate and surface area of children between the ages of three and five years. D. A. Collins and J. F. McClendon.—p. 521.

The brain-liver weight rates and the infancy and childhood history of epileptics. In all types of epilepsy the average brain and liver weights vary from those found in the normal.

There is no etiologic relation between the developmental and infectious past personal history of the epileptic and the brain weight variations. Mental impairment as the disease progresses is present in all types. Brain weight variations have no influence upon the intellectual decline of such individuals.

Basal metabolic rate and surface area of children between the ages of three and five years. The basal rate for this group of children varied slightly around fifty calories per square meter per hour. Restlessness, noise, cold, and sleep, also, caused fluctuations in their basal rates. These surface areas were determined by formulae developed by Boyd and Scammon.

Journal of the American Medical Association

Vol. 95, July 5, 1930

Scurvy. M. G. Gichner and M. Sherry.—p. 9.
*Comparative effect of liver and liver extract on diabetes in a case of combined pernicious anemia and diabetes. B. D. Bowen.—p. 30.
Food poisoning. Editorial.—p. 36.
Obesity. Editorial.—p. 36.
Metabolism during rest. Editorial.—p. 37.
Rickets and vitamin D. Editorial.—p. 38.

Vol. 95, July 12, 1930

Preservation of the antiscorbutic vitamin. Editorial.—p. 114.
Renal rickets—an undesirable designation? Editorial.—p. 117.

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*Fluid limitation and ketogenic diet in traumatic epilepsy. H. D. Palmer.—p. 197.
*Local insulin reactions. M. Lasersohn.—p. 199.
Obesity and diabetes. Editorial.—p. 202.

Vol. 95, August 2, 1930

Viosterol: Prophylactic and therapeutic dosage. J. H. Hess, H. G. Ponches, M. L. Dale and R. I. Klein.—p. 316.
The theories of diabetes. Editorial.—p. 344.
The nature of vitamin A. Current Comment.—p. 347.

Vol. 95, August 9, 1930

Lipodystrophy from insulin infections. L. L. Reed, W. E. Anderson and L. B. Mendel.—p. 395.
The sickle cell phenomenon. Current Comment.—p. 416.

Vol. 95, August 16, 1930

Diabetes insipidus complicated with osteitis fibrosa polycystica. A. Sophian.—p. 483.

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*Economic results of the modern treatment of diabetes: Status of patients treated with insulin compared with their prediabetic condition. B. D. Bowen.—p. 565.
*Some newer remedies in the treatment of pernicious anemia: desiccated stomach. R. Isaacs and C. C. Sturgis.—p. 585.
*Secondary anemia. H. Z. Giffin and C. H. Watkins.—p. 587.
Cholesterol and the anemias. Editorial.—p. 596.
Minimal requirements of calcium and phosphorus in childhood. Editorial.—p. 597.

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Variations in blood pressure. Editorial.—p. 666.

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*Eight years experience with the ketogenic diet in the treatment of epilepsy. H. F. Helmholz and H. M. Keith.—p. 707.
*Dietary facts, fads and fancies. W. J. Stone.—p. 709.
The blood calcium in jaundice. Editorial.—p. 732.

Vol. 95, September 13, 1930

Vitamin A in disease. Editorial.—p. 798.
The lungs and fat metabolism. Editorial.—p. 800.

Vol. 95, September 20, 1930

*A newer conception of nutrition. W. Weston.—p. 834.
*The rational treatment of arterial hypertension. S. Weiss and L. B. Ellis.—p. 846.
*Pellagra-like skin lesions due to the ketogenic diet. A. E. Greer.—p. 863.
Is a meat diet a menace. Editorial.—p. 866.

Vol. 95, September 27, 1930

Human constitution in relation to gastro-intestinal disorders. J. Friedenwald.—p. 905.
Influence of emotional shock on the gastro-intestinal tract in the psychoneuroses. G. A. Moleen.—p. 910.
The problem of the classification of nephritis. J. P. Simonds.—p. 930.
Effects of loss of gastric juice. Editorial.—p. 936.
Vitamin A and carotene. Editorial.—p. 937.

Comparative effect of liver and liver extract on diabetes in case of combined pernicious anemia. In the case of combined pernicious anemia and diabetes reported it was believed that raw liver lowered the blood sugar, but further observations indicate that neither raw liver nor liver extract are effective in lowering the blood sugar.

Fluid limitations and ketogenic diet in traumatic epilepsy. Though fluid limitations and ketogenic diet are both important

in treatment of epileptic patients, yet in the case reported the control of the convulsions rested largely on the variations of the fluid intake.

Local insulin reactions. Local insulin reactions are very rare. Whether it is a local anaphylatic manifestation of the preparation used is an open question. Desensitization or reduction in dosage are not necessary.

Economic results of the modern treatment of diabetes status of patients treated with insulin compared with their prediabetic condition. The adult diabetic compares favorably with the normal individual except that the majority of diabetics have subjective impressions that they are not capable of normal physical efforts. Children do not show this physical limitation.

Some newer remedies in the treatment of pernicious anemia. Dried defatted hog stomach has been used successfully as a therapeutic agent in the treatment of pernicious anemia. So far, liver-induced remission and results obtained with stomach therapy are similar.

Secondary anemia. Experimental and clinical data concerning the treatment of secondary anemia are discussed. Clinical tests of various substances should be made singly and then in combination. The problem is the determination of the kind of treatment which is suitable for each type of secondary anemia.

Eight years experience with the ketogenic diet in the treatment of epilepsy. Of 272 patients treated by ketogenic diet, thirty per cent are free from convulsions. Dehydration may be a factor in the control of petit mal convulsions, but the diet has a definite effect on the number of attacks.

Dietary facts, fads and fancies. The value of the classes of foods which the body needs, together with the need for minerals and vitamins, are discussed. Fads and fancies are the result of misinformation fostered largely by cultists through the newspapers.

A newer conception of nutrition. Analysis of food is essential, since foods grown in different sections of the country and in different localities show variations in their chemical constituents. If scientific basis exists for a balanced diet, the chemical components of the diet must be known. Especially in infant feeding the mineral content of the milk should be known and improved by various concentrates.

The rational treatment of arterial hypertension. A chemical that would establish a permanent lower level has not as yet proved of value by exact observation. No special diet has proved of definite value. As a general preventive measure, a well balanced diet which contains enough protein to supply ten per cent of the calories should be followed. Salts should be relatively low and spices avoided.

Pellagra-like lesions due to ketogenic diet. Pellagra-like lesions have occurred in patients while on a ketogenic diet. Such diets are usually low in protein and vitamin B. Whether the lesions are the result of deficiency in protein or vitamin B_2 is not known. Peterman suggested that they are due to vitamin B_2 deficiency caused by the low protein allowance.

Journal of Biological Chemistry

Vol. 87, July, 1930

The Jansen and Donath procedure for the isolation of antineuritic vitamin. R. R. Williams, R. E. Waterman and S. Gurin.—p. 559.

The effect of antineuritic vitamin preparations on the growth of yeasts. R. J. Williams and R. R. Roehm.—p. 581.

The nature of vitamin C. A study of its electrial transference. R. R. McKinnis and C. G. King. —615.

Studies in the physical chemistry of the proteins. The solubility of fibrinogen in concentrated salt solutions. M. Florkin.—p. 629.

*Chemical calorimetry. Prolonged meat diets with a study of kidney function and ketosis. W. S. McClellan and E. F. DuBois.—p. 651.

*Chemical calorimetry. Prolonged meat diets with a study of the metabolism of nitrogen, calcium and phosphorus. W. S. McClellan, V. R. Rupp and V. Toscarri.—p. 669.

Studies on crystalline insulin. The adsorption of insulin on charcoal. H. Jensen and A. DeLawder.—p. 701.

*The Williams-Waterman vitamin B_3. W. H. Eddy, S. Gurin and J. Kesesztesy.—p. 729.

Total sugar of blood and urine. The reducing action of glutathione. M. R. Everett.—p. 761.

Vol. 88, August, 1930

The nature of the sugar in four cases of pentosuria. G. Isidor.—p. 1.

*Vitamins in dried fruits. The effect of drying and of sulphur dioxide upon the vitamin A content of fruits. A. F. Morgan and A. Fields.—p. 9.

*A note on the calcium retention on a high and low fat diet. M. G. Mallon, R. Jordon and M. Johnson.—p. 163.

*Fat soluble vitamins. The antirachitic value of cow's milk as modified by the feeding of irradiated yeast. H. Steenbock, E. B. Hart, F. Hanning and G. C. Humphrey.—p. 197.

Studies on the mode of combination of iron with certain proteins, amino acids and related compounds. C. V. Smythe and C. L. A. Schmidt.—p. 241.

*Urea concentrations in the blood of the rat in relation to pregnancy and lactation on diets containing varying concentrations of protein. H. T. Parsons.—p. 311.

The effect of phosphorus administration, antirachitic treatment, and spontaneous healing on the calcium in the serum of rachitic rabbits. B. Hamilton, L. Kajdi and D. Meeker.—p. 331.

*The determination of maganese in animal materials. J. T. Skinner and W. H. Peterson.—p. 347.

Note on a previously unrecorded occurrence of crystalline globulin in banana seeds. G. L. Keenan and J. D. Wildman.—p. 425.

*A crystalline derivative of an acid present in liver, active in pernicious anemia. R. West and M. Howe.—p. 427.

Vol. 88, September, 1930

Applications of statistical method to the data of vitamin feeding experiments. The per cent effect of measured variables. M. H. Irwin, A. E. Brandt and P. M. Nelson.—p. 449.

Applications of statistical method of the data of vitamin feeding experiments. How many animals per experimental lot. M. H. Irwin, A. E. Brandt and P. M. Nelson.—p. 461.

The copper content of infant livers. D. B. Morrison and T. P. Nash.—p. 479.

A micro calorimetric method for the quantitative estimation of iodine in blood. R. G. Turner.—p. 497.

The metabolism of the phospholipids. The influence of growth on phospholipid (and cholesterol) content of the white rat. R. G. Sinclair.—p. 575.

*The cystine deficiency of the proteins of garden peas and of potatoes. J. R. Beadles, W. W. Braman, and H. H. Mitchell.—p. 615.

*The relation between cystine deficiency in the diet and growth of hair in the white rat. J. R. Beadles, W. W. Braman, and H. H. Mitchell.—p. 623.

Chemical calorimetry. Prolonged meat diets with a study of kidney function and ketosis. Two men on an exclusive meat diet over a period of a year showed no evidence that ill effects had occurred. A milk ketosis was noted throughout, but no injuries resulted from this condition.

Clinical calorimetry. Prolonged meat diet with a study of the metabolism of nitrogen, calcium, and phosphorus. Studies indicate that the nitrogen and fat are well absorbed. One subject remained in nitrogen equilibrium while the other showed a slight negative balance. Both men showed negative calcium balances and positive phosphorus balances.

The Williams-Waterman vitamin B_3. Evidence to demonstrate the existence of a third growth and weight restoration factor, which is distinct in distribution and properties from both the antineuretic and antipellagric factor, is submitted. The sources, heat and alkali sensitivity of vitamin B_3 are discussed.

Vitamins in dried fruits. The effect of drying and of sulphur dioxide upon the vitamin A content of fruits. Experiments on peaches, prunes, and apricots were made. Sulfured dehydrated foods retained the largest proportion of vitamins. Sundried fruits showed better retention of vitamin A than did the corresponding unsulfured dehydrated products. Lye dipping of dried prunes at 0° for a period of a year brought about no detectable loss of vitamin A.

A note on the calcium retention on a high and low fat diet. Calcium balances were made on two students who were first placed on a high fat diet and then on a low fat diet. The results were not similar; it was concluded that fat per cent cannot be said to have exercised a definite influence on calcium retention.

Fat soluble vitamins. The antirachitic value of cows' milk as modified by the feeding of irradiated yeast. From the results of the experiments it is quite evident that the vitamin D potency of milk can be increased by feeding the lactating animal a substance

potent in vitamin D. Irradiated yeast gave the best results. Whether this can be used effectively for the same purpose in the human dietary, has not been demonstrated.

Urea concentration in the blood of the rat in relation to pregnancy and lactation on diets containing varying concentrations of protein. Fluctuations in urea concentration in the blood of rats were observed in respect to reduction of kidney tissue, concentration of dietary protein, and burdens of reproduction. Increased food intake accounts for only part. The act of suckling seems to increase the urea during fasting when the diet has been rich in casein, liver, or egg albumin.

The determination of manganese in animal materials. The periodate method has been adapted to the determination of the small quantities of manganese found in animal tissue. By replacing the hydrochloric acid used in the official method by nitric, sulfuric or phosphoric, the interference of calcium salt was overcome. This method gives uniformly high results and more complete recoveries of added manganese than the official method combined with the removal of calcium sulfate by alcohol.

A crystalline derivative of an acid present in liver, active in pernicious anemia. The method of preparation is described as well as its physical and chemical character. The activity of such a preparation has been tested on three patients. In these the reticulocytes rose as follows, 3 to 30 per cent, 1 to 16 per cent, and 0.9 to 10.7 per cent.

The cystine deficiency of the protein of garden peas and of potatoes. Experiments indicate that the cystine deficiency of garden peas is not due to the cooking, as similar results were obtained on fresh green garden peas. When boiled and peeled potatoes were used as the source of protein the addition of cystine to the diet enhanced the growth-promoting value of the protein.

The relation between cystine deficiency in the diet and growth of hair in the white rat. In these experiments it is evident that there is a relation between the cystine content of the diet and hair growth. It appears, under the conditions of the experiment, that the growth of hair has been stimulated to a greater extent by the cystine supplement than has the growth of all tissues as measured by increase in body surface.

Journal of Home Economics

Vol. 22, July, 1930

A glimpse of the social economics of Porto Rico, 1930. H. C. Sherman.—p. 537.

*The influence of economic and social changes on the cost of food. G. J. Ward.—p. 552.

*The vitamins of water cress. L. B. Mendel and H. B. Vickery.—p. 581.

*The antiscorbutic vitamin content of some preserved foods. G. MacLeod and L. Booker.—p. 588.

Vol. 22, August, 1930

*The vitamin A, B, C, and G content of watermelon. H. E. Munsell.—p. 680.

Vol. 22, September, 1930

How to interest men and woman in nutrition. L. A. Case.—p. 726.

A study of the Japanese persimmon grown in Florida. J. Tilt, R. B. Hubbell and R. Inman.—p. 757.

The influence of economic and social changes on the cost of food. Growth of apartment houses and increase in the meals eaten outside the home have encouraged high food costs. Decrease in food costs will come from better household practices, in careful buying, preparing and serving, and elimination of waste.

The vitamins of watercress. By experiments on albino rats the dietary value of water cress as a green supplement furnishing vitamins and roughage is indicated. Vitamin A, B and C are present and are conserved when the fresh leaves are carefully dried.

The antiscrobutic vitamin content of some preserved foods. Antiscorbutic value of five foods were investigated. Canned pimento and fresh grapefruit have the same antiscorbutic value. Canned grapefruit has a somewhat less value.

The vitamin A, B and C content of watermelon. Over a test period of four months,

watermelon was found to be a good source of vitamin A and C while B and G are detectable in small amounts.

Journal of Nutrition

Vol. 3, July, 1930

*The nutritive value of cereal breakfast foods. The response of the human stomach. H. D. Clough, J. S. Carman and E. M. Austin.—p. 1.

The nutritive value of cereal breakfast foods. The biological value of some cereal proteins as determined on rats. H. A. Mattill.—p. 17.

*The comparative value of different food proteins for reproduction and lactation in the rat—milk, eggs and meats. M. M. Clayton.—p. 23.

*The nutritional potency of fresh, cooked, dry and alcohol-extracted liver. J. S. McHargue, W. R. Roy and F. E. Hull.—p. 49.

*The effects of high sugar diets on the growth and structure of the rat. C. M. Jackson.—p. 61.

*The influence of high and low protein diet on the basal metabolism and the chemistry of blood and urine in normal women. C. C. Wang. J. E. Hawks, B. Huddlestun, A. A. Wood and E. A. Smith.—p. 79.

Vol. 3, September, 1930

The utilization of carbohydrate by totally depancreatized dogs receiving no insulin. S. Soskin.—p. 99.

The response of the monkey to withdrawal of vitamin A from the diet. E. B. Tilden and E. G. Miller.—p. 121.

*Does the nickel dissolved from the container during pasteurization catalyze the destruction of the vitamins of milk? A. D. Pratt.—p. 141.

The metabolism of the albino rat during prolonged fasting at two different environmental temperatures. K. Horst, L. B. Mendel and F. G. Benedict.—p. 177.

The nutritive value of cereal breakfast foods. The response of the human stomach. By evacuating the stomach contents at different intervals and determining the amount of nitrogen remaining in the stomach, the rate of emptying was determined. But slight difference in rates of evacuation of the different cereals in the same subject were noted. Bran influences evacuation very little.

The comparative value of different food proteins for reproduction and lactation in the rat. Milk, eggs and meat. The results of the experiment indicate that eggs are superior to milk for both reproduction and lactation. When a special salt mixture was used, instead of the Osborne and Mendel mixture, lactation on both milk and egg ration was impaired. Muscle protein is lower than milk, eggs, or glandular meats. In the raw state, kidney appears most adequate, and raw eggs the least, as they are poorly assimilated.

The nutritional potency of fresh, cooked, dry and alcohol extract of liver. Rats fed on a synthetic diet for seventeen days failed to gain when fed liver which had been dried at 100°C in the air, whereas those getting raw liver gained rapidly. Alcohol-extract of liver was not as potent as raw liver.

The effect of a high sugar diet on the growth and structure of the rat. High sugar diets, adequate in other respects, have no detremental effect on growth and health in general. Animals fed such diets showed hepatic enlargement and tendency toward fatty deposits in the liver.

The influence of high and low protein diet on the basal metabolism and the chemistry of blood and urine in normal women. Experiments on six women on high protein diet indicate there is no difference in metabolic rate. An increase in non-protein-nitrogen, urea and creatine of blood and a slight increase in sugar were noted. No difference in the blood pressure was found.

Does the nickel dissolved from the container during pasteurization catalyze the destruction of the vitamins of milk. Milk that had been pasteurized in nickel containers contained fifteen parts nickel per million. By feeding rats milk which had been pasteurized in nickel containers and that pasteurized in a glass vessel, no appreciable destruction of vitamin A, B nor C was found to have taken place.

Modern Hospital

Vol. 35, July, 1930

*When the dietary labor turnover is low and the morale is high. L. Clark.—p. 134.

Saskatchewan's traveling dietitian and what she does. —p. 138.

Vol. 35, August, 1930

A well coördinated food service and how it functions. H. E. Gilson.—p. 65.
What the college expects of the hospital in dietetic training. E. Whittaker.—p. 138.
A new butter cutting device. N. R. Johnson.—p. 148.

Vol. 35, September, 1930

*A central tray service that has had notable success. W. L. Quennell.—p. 71.
*How labor turnover may be reduced.—p. 89.
*Where the special diet needs of business men are met. E. Engdahl.—p. 107.
Catering to the food habits of patients in New Orleans. C. E. McKinstry.—p. 110.
How to clean terrazzo, concrete tile and art marble. —p. 154.
Steam jacketed kettles among new pieces of kitchen equipment.—p. 156.
Maintaining kitchen equipment in good condition. —p. 160.
New silver cleaner and burnisher—a complete outfit. p. 162.

Where the dietary labor turnover is low and the morale is high. The organization and personnel of the dietary department of the Presbyterian Hospital, New York City, are discussed. By a division of responsibility and efficient personnel the labor turnover is kept at a minimum.

A central tray service that has had notable success. A central tray service has been in operation at the Highland Park General Hospital for about a year with satisfactory results. About one-hundred and thirty trays are served in forty-five minutes. Four trays are put on lift and sent to floor designated and here distributed to rooms by four maids.

How labor turnovers may be reduced. From a questionnaire to hospital administrators various suggestions have been made as to the present labor turnover. The bonus system, and careful training of employers are potent aids in the stabilization of the personnel.

Where the special diet needs of business men are met. Special diet service for the business man is recognized and filled at Seattle General Hospital. No attempt is made to gain a profit. Eating special meals is more enjoyable if there are others present who need the same service.

Western Hospital Review

Vol. 15, June, 1930

Diet in relation to arthritis. R. F. Atsatt.—p. 36.

Vol. 15, July, 1930

Constipation. J. A. Pollia.—p. 25.
*Report of Viennese Experiments on low fat feedings in diabetes. P. A. Gray.—p. 38.

Vol. 15, August, 1930

The relation of diet to the teeth of children. W. M. Cameron.—p. 38.

Report of Viennese experiments on low fat feedings in diabetes. The mechanism of the low fat, high carbohydrate diet is not exactly known, however a marked improvement has been noted in patients taking this type of diet. The author refers to the diet as the "curative treatment" of diabetes.

NEWS NOTES

The Thirteenth Annual Convention of the American Dietetic Association was held at the Royal York Hotel, Toronto, Canada, on September 8th, 9th and 10th. It was rightly called the Vacation Convention, for it combined all the delights of a vacation in the early fall with an unusually interesting and inspiring meeting. Its success was due in large part to the enthusiastic and persistent work of the local committees and the program, publicity and exhibit chairmen. Over five hundred and seventy-five delegates were present.

The Convention opened with a tea given by the Quebec Dietetic Association at the University Women's Club on Sunday afternoon. This was a delightful gathering of old friends and new, among whom were three mothers of dietitians.

The new filing system facilitated the task, on Monday morning, of the registration of all delegates. Mame Porter of Toronto General Hospital presided at the morning session. Dr. J. P. Gilchrist of Toronto presented an interesting and practical paper on "Insulin and the Clinician." He emphasized the need of limiting fat in all diabetes complicated with gall bladder infection. Dr. R. B. Gibson, Associate Professor of Biochemistry at University of Iowa, reported on a "Series of Experimental Studies on the Carbohydrate Tolerance in the Diabetic." These were well illustrated and very helpful papers. Dr. W. R. Campbell of the Department of Internal Medicine of the University of Toronto Medical School gave a report on work done on "Available Carbohydrate Contents of Some Foods." This paper showed an exact and comprehensive study of the composition of certain common foodstuffs, and convinced one of the need for more exact analyses of foods for scientific work.

The Reunion Luncheon was held in the Roof Garden of the Royal York with Annie L. Laird, Honorary President of Ontario Dietetic Association, presiding. A cordial welcome was extended to all present by Miss Laird in behalf of the Canadian dietitians, after which Jean R. Gunn, R.N., Superintendent of Nurses, Toronto General Hospital, was introduced. Miss Gunn presented greetings to the Association from the nurses of Canada, and also from the Registered Nurses Association of the Province of Ontario. She said that close coöperation of nurse and dietitian is necessary for any promotion of health. She spoke of the friendly relationhip between Canada and the States and our responsibility to ourselves and the world as nurses and dietitians. A letter of welcome was read from Florence Emery. Dean DeLurie of the Faculty of Arts, University of Toronto, graciously welcomed the dietitians to Toronto on behalf of the University of Toronto. Anna Boller, President of the American Dietetic Association, expressed the thanks of the Association to the Canadian Associations for their messages of welcome and for their enthusiastic hospitality, which was making the Convention such a success.

The Annual Business Meeting of the American Dietetic Association was held on Monday afternoon with Miss Boller presiding. The following officers were elected for the coming year: President, S. Margaret Gillam, University Hospital, Ann Arbor, Michigan; President Elect, Martha Koehne, University of Michigan, Ann Arbor, Michigan; Vice-President, Ruth Cooley Baumhof, Jewish Hospital, St. Louis, Missouri; Second Vice-President, Mary I. Barber, Kellogg Company, Battle Creek, Michigan; Secretary, Phyllis Dawson Rowe, Johns Hopkins University, Baltimore, Md.; Treasurer, Mrs. Katherine M. Thoma, Michael Reese Hospital, Chicago. The proposed amendments to the Constitution of the Association were

voted on and adopted by the Association. Annual reports of the President, Secretary and Treasurer were read and approved. Several other reports of standing committees were given.

The business meeting was followed by a tea at the Royal York with the Ontario Dietetic Association acting as hostesses. This was delightfully refreshing after a busy day, and the members of the Ontario Association were charming hostesses.

The Section Dinner Meetings were well attended Monday evening. Many members keenly regretted the fact that they were unable to attend all these sectional meetings.

Lenna Cooper of Montefiore Hospital, New York, presided at the Administration Section Meeting. Adeline Wood of Mount Sinai Hospital, New York, gave a practical talk on "Meat Purchasing," Miss Wood has had wide experience in this field. Helen Gilson of the Pennsylvania General Hospital, Philadelphia, gave an interesting report on "Standards for Tray and Dining Room Service." This talk was well illustrated with lantern slides. Miss Shalla of the University of Iowa discussed the "Effect of Method of Preparation on Loss in Meat."

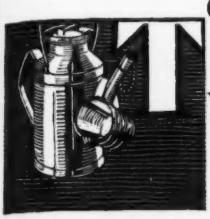
Clyde Schuman, American Red Cross, Washington, D. C., presided at the Social Service Section. The terms "dietitian" and "nutritionist" were defined and discussed. Reports were given on the training and experience of dietitians now doing some phase of social service related to food and nutrition, and dietitians now carrying on nutrition work as part of the community program. A report was given on information secured from social service dietitians and nutritionists on suggested additions and omissions to the training for nutrition work. The names and addresses of all nutritionists in the United States and Canada, in 1930, were reported on. A report of the history and support of various phases of nutrition work was also given. A survey was given on findings in hospitals doing some type of social service work.

The Diet Therapy Section Meeting was presided over by Helen Anderson of Scripps Metabolic Clinic, La Jolla, California. Martha E. Davis of the University of Chicago reported on "The Relative Value of Food Standards." Mary Harrington of Harper Hospital, Detroit, Michigan, gave some interesting "Recipes for Weighed Diets." Nelda Ross of Presbyterian Hospital, New York City, spoke on "Dietary Case Histories; Their Uses," and Edna Klumb, of St. Mary's Hospital, Rochester, Minnesota, reported on "Children's Therapeutic Diets." Elizabeth Hayward of Methodist Episcopal Hospital Los Angeles, California, spoke on "The Value of a Current Literature File."

Ruth Cooley, of Jewish Hospital, St. Louis, Missouri, presided at the Education Section Meeting. Martha Koehne read a report of Esther Simons on a survey relating to the qualifications of university teachers for instruction in diet therapy. Ethel M. Ollis, presented a blank for the routine report of students to home economics heads. Martha Koehne spoke on the advisability of having a recognized list of home economics colleges for the American Dietetic Association. Thelma Tubbs Currier brought up the question of meeting American Dietetic Association standards in hospital courses for student dietitians. Eugenia Martin reported on a reorganization of permanent records for student courses. Rosina Vance reported on inspection of hospital courses. Millie Kalsem spoke of the value of affiliation for student courses for dietitians. Sister Mary Victor was unable to present her report on "Outline of Work for Student Nurses' Services in the Dietary Department." These suggested courses are, however, for sale at Association headquarters. Eleanor Welles of New Zealand gave a comprehensive and well illustrated description of her work and experiences in New Zealand. Elsbeth Marshall of London, England, reported on English hospital conditions, and Lillian Smith of Australia said the Australians were looking to us for help and guidance in operating dietary departments.

The Tuesday morning session opened with Lenna Cooper of the Administration Section presiding. Mr. E. C. Slater of the Purchasing Department of the University of Iowa gave a paper on "The Legal Aspects of Purchasing." He said: "Specify the service as

The March of progress



Twenty years ago today

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well as the quality desired when ordering; specify the frequency of payments required; ask for protection against price increase; guard against paying for services not received." May Benedict of Mechanics Institute, Rochester, New York, gave a detailed study of "Duty Analysis in Food Administration." Copies of this were available for distribution.

At the Tuesday luncheon, Mary DeGarmo Bryan, Department of Institutional Managment, Teachers College, Columbia University, presided. The meeting was an enthusiastic one. Grace Thompson of Vassar Brothers Hospital, Poughkeepsie, reported on a "Code of Ethics." Dr. MacEachern was present at the meeting and heartily endorsed the code. Lita Bane of the *Ladies Home Journal* spoke on "What is the Professional Attitude?" She emphasized sincerity, human interest, honesty to oneself, thoroughness, promptness, reliability, and building in of one's ideals. Dr. Lillian Storms of Gerber Products, Fremont, Michigan, spoke briefly on "What We Can Do to Combat Diet Fads and Food Faddists." Miss Smedley of the Philadelphia School System spoke briefly.

The afternoon session opened with Helen Anderson, Chairman of Diet Therapy Section, presiding. Dr. A. A. Fletcher of Toronto spoke on "Nutrition and Diet in Chronic Arthritis." He said that a disturbance in nutrition was often the predisposing cause of arthritis. He showed X-ray pictures to illustrate the many cases successfully treated on a diet high in vitamin B, restricted carbohydrate, and adequate protein. He did not favor limiting meat and protein and he advised the use of vitamin B in the form of yeast and wheat germ, while supplementing the vitamin D content of the diet with cod liver oil or viosterol. Wheat germ should be limited or omitted in cases of colitis, as it is more irritating than yeast. The diet, to be successful, must be accompanied by rest and general therapy. Dr. Drake, of the Sick Children's Hospital, Toronto, read a paper on "Vitamin Therapy." He advocated the use of the concentrate of vitamin A, and *tested* yeast as a source of vitamin B, for growth, celiac disease, and nutritional edema. He advised against the use of soda in cookery of foods rich in vitamin C.

The afternoon session was followed by a tea given by the Alumni and Staff of the Department of Household Science, University of Toronto, at the Household Science Building. Miss Annie Laird was the hostess.

The Annual Banquet on Tuesday evening filled the large ball room to capacity. Miss Boller, President of the Association, was the toastmistress. Several organ selections and three solo dances added charm to the evening's program. Appreciation was expressed by Miss Boller, in behalf of the Association, to Miss Hazlitt, Chairman of Local Arrangements, to Violet Ryley, Chairman of Hospitality Committee, to Miss Ketchum and Miss Porter, local Chairmen of the Program and Trip Committees, and to Miss Lenfest, the Business Manager, for their untiring and excellent work, Dr. MacEachern, recently elected honorary member of the Association, was introduced. He expressed his delight in the growth of the Association. He believed that we should hear more about the value of medical and hospital work and less about its cost. The speaker of the evening, the Honorable William Renwick Riddell, Justice of the Court of Appeals, Toronto, gave an amusing address on "Dietetics in the Middle Ages."

Wednesday's program was introduced by the Red Cross Breakfast, the annual reunion of the Red Cross dietitians and their friends, with Clyde Schuman presiding.

The morning session opened with Ruth Cooley, Chairman of the Education Section, presiding. Dr. H. S. Houghton, Dean of the University of Iowa Medical School, gave an instructive talk on "Nutrition Training in the Clinical Years of the Medical Course." Dean Anna W. Goodrich, of the Yale School of Nursing, emphasized the value of coöperation between dietitian and nurse, for the good of all. She encouraged the Association in its good work and gave inspiration for new effort.

Dr. Martha Koehne presided at an Affiliation Luncheon after the morning session. There was much earnest discussion of the question whether all active members of an

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affiliated state association should become members of the national association by September 1931. The date was finally postponed. The question of collection of dues to the National Association by the treasurer of an affiliated State association was discussed. Other topics discussed included: combination of states to form an association, where a state association is not feasible; automatic or optional membership in state association of members of National Association; ways in which the state and national associations may be of mutual assistance. Time proved far too short for any definite decisions to be reached.

The Wednesday afternoon program opened with Clyde Schuman, Chairman of Social Service Section, presiding. Laura Comstock of Eastman Kodak Company, Rochester, New York, spoke on the problem of "Interpreting Nutrition to Industry," and Ester Ericksen of the Massachusetts State Board of Health discussed "Interpreting Nutrition to the Home." Each speaker was an authority in her own field and presented much food for thought.

Many of the Association enjoyed the Wednesday motor trip through Toronto. Others took the trip around the islands by launch, or visited special points of personal interest.

One of the most artistic and enjoyable events of the whole convention was the reception and dinner given by Lady Eaton and the Directors of the T. Eaton Company in the Georgian Room of the Eaton Restaurant on Wednesday evening. Lady Eaton received over three hundred of the delegates. The music, the menu, and the service were superlative, each lending its part to a perfect whole. Lady Eaton welcomed the Association in behalf of the company and expressed generous appreciation of the excellent work of Miss Ryley of Toronto and of Miss Massey of Quebec. Miss Boller, for the American Dietetic Association, voiced appreciation for the hospitality of Lady Eaton and the T. Eaton Company. Following the dinner, Dr. Murlin of Rochester spoke on "Some Controverted Questions of Nutrition," and Mr. James H. Ballantyne, Deputy Commissioner of Labor of the Province of Ontario, discussed "The Labor Situation in Ontario." The report of the Chairman on Resolutions was read by Mrs. Dorothy Stuart Waller. The Convention was then formally adjourned by Miss Boller.

Thursday morning was given over to trips, one group going to Connaught Laboratory where insulin is made, then proceeding to the Banting Research Laboratory where they were met by Dr. Banting and learned of his recent research on baby chicks as a means of studying infantile diarrheas. It was a privilege to see and hear Dr. Banting in his own work shop.

The Clinic at Toronto General Hospital was one of the most interesting sessions of the Convention. Dr. E. E. Cleaver spoke on "Dietetic Treatment in Diseases of the Colon" and emphasized the value of a non-residue diet. Dr. R. F. Farquharson talked on "Liver Preparations in the Treatment of Pernicious Anemia." He prefers whole liver and liver broth to extracts. He said dried pig's stomach was very effective, but still very costly. Dr. W. R. Campbell gave an excellent talk on "Treatment of Renal Diseases."

A second group visited the following kitchens: Royal York Hotel, Y. W. C. A. cafeteria, Georgian Room of T. Eaton Company, Ellen Bradley's Grill, Business Men's Lunch, Muirhead's Cafeteria, Stoodleigh Cafeteria, Savarin Restaurant, and the Arcadian Court of Robert Simpson Company. The third group visited the Ontario Agricultural College and MacDonald Institute at Guelph, where luncheon was served. Luncheon was served to the other groups at the Royal Canadian Yacht Club.

A report of the Convention would not be complete unless one mentioned the very attractive and interesting exhibits. More exhibitors were in attendance than ever before, and they gave most generously of their time and attention. The Association is deeply indebted to the following exhibitors for their very attractive and instructive booths, and for their courteous attention:

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EMMA L. FEENEY.

Reports of Sections, 1920-1930

Administration Section. The Administration Section has concerned itself chiefly with its program activities for the annual meeting. However, three committees have been active during the year, as will appear from their reports. The Code of Ethics Committee, Grace Thompson, Chairman, has had several meetings and has consulted many people within and without the Association.

Rose T. Baker, formerly of Drexel Institute, has made a survey of the personnel of hospital dietary departments, this survey including a number of hospitals in and about Philadelphia.

Emma Aylward and her committee prepared a bibliography with short abstracts of current publications along food administration lines.

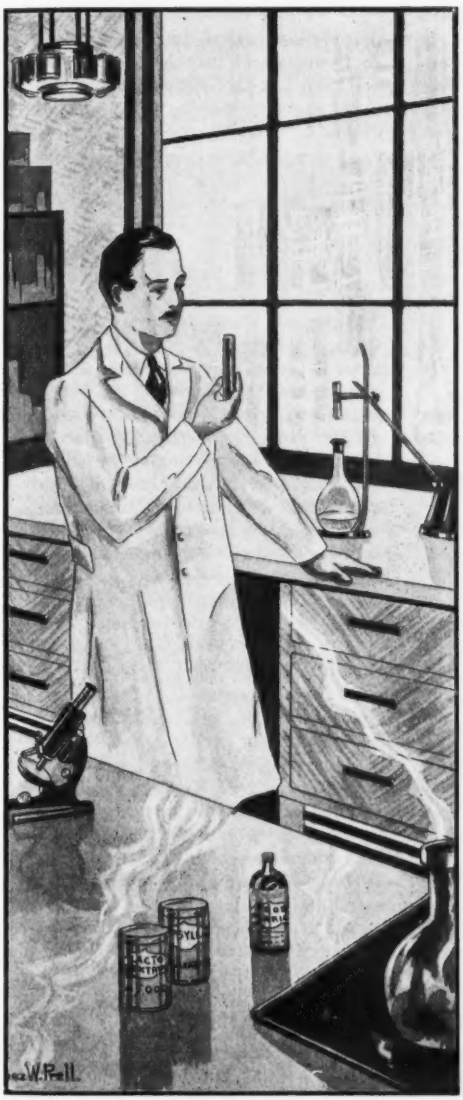
LENNA F. COOPER,
Chairman.

Diet Therapy Section. Under the auspices of the Diet Therapy Section, the following addresses and reports were presented at the annual Convention: "Nutrition and Diet in Chronic Arthritis" by Dr. A. A. Fletcher; "Vitamin Therapy" by Dr. T. G. Drake; "The Relative Value of Food Standards" by Martha E. Davis; "Recipes for Weighed Diets" by Mary M. Harrington; "Dietary Case Histories, Their Uses" by Nelda Ross; and "Children's Therapeutic Diets" by Edna Klumb.

HELEN ANDERSON,
Chairman.

Education Section. The following studies were prepared under the auspices of the

Replace Harmful Putrefaction with Normal Fermentation



IN the bowel, the products of fermentation stimulate intestinal activity and so aid bowel action, while the products of putrefaction paralyze the bowel and cause constipation.

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Education Section: "Survey Relating to the Qualifications of University Teachers for Instruction in Diet Therapy," by Esther Simon, and "Standardized Outlines of Courses in Dietetics for Student Nurses," by Dorothy Hacker, Dorothy Stewart Waller, and Sister Victor (these outlines may be obtained through the Business Office at one dollar each). The extensive work has been continued in approving courses in hospitals for the student dietitian. Reports were prepared by Eleanor Wells, Elsbeth Marshall and Lillian Smith on the dietary departments of hospitals in New Zealand, England, and Australia.

RUTH COOLEY BAUMHOF,
Chairman.

Social Service Section. Following a survey made in an endeavor to determine the constituency of the Social Service Section, and the training and experience of the members, as well as their ideas as to ways in which the training might be changed for the better, it was found that more than three-fourths of those to whom questionnaires were sent were holders of college degrees. The largest number reporting on experience, had had experience as teachers, having served in that capacity for a longer period than the non-teaching group had served in their fields. In reply to the questionnaires, it was found that additional work in child and behavior psychology and public speaking were felt to be advantageous as part of the training for work in dietetics. Others indicated their desire for courses in sociology and the theory of social case work.

During the year, the Chairman of the Social Service Section spoke on the work of the Section to the Philadelphia Dietetic Association, and also gave an address on educating the dietitian, before the recent meeting of the Catholic Hospital Association.

Among the papers presented under the auspices of the Section at the Convention were "Summary of Nutrition Work in Winnipeg," by Jean Folkins; "The Organization and Functioning of the Dietetic Service for the Clinic Patient," by Mrs. Esther Simon; "Interpreting Nutrition to Industry" by Laura Comstock; and "Interpreting Nutrition to Homes," by Esther Ericksen. At the dinner meeting brief reports were made in the work undertaken for the year 1930.

In conclusion, as Chairman of the Social Service Section, I should like to express my appreciation to the sub-chairman who have so generously contributed their time to the development of the work of this Section during the year 1929–1930. I should also like to express my appreciation to the executive Committee of the American Dietetic Association for its help in furthering the work of the Social Service Section, for the privilege of having served as chairman of this Section and having been a member of the Executive Committee of the American Dietetic Association.

CLYDE B. SCHUMAN,
Chairman.

The Chicago Dietetic Association held its August meeting at the Passavant Hospital. An interesting tour was conducted through the hospital and dietary department preceding the meeting. Dr. Barker, of the medical staff, discussed "Diet in Oedema."

At the September meeting reports and impressions of the National Convention at Toronto were discussed by delegates. Dietitians in administrative, educational, diet therapy, and infant welfare work attended the convention as delegates and gave enthusiastic reports of the work each section had accomplished during the past year. The members were also told of how royally the American Dietetic Association had been entertained in Toronto through the efforts of the Toronto Association. At the business meeting a report was given of the Affiliation luncheon meeting. The Chicago Dietetic Association then went on record as voting to act as a nucleus in the formation of the Illinois State Dietetic Association. A chairman was appointed to draw up plans for this organization to be submitted at the meeting of the Mid-West Dietitians in January, at which time delegates from the State will attend. In October the Association met at MiLady's Tea Room in the new Merchandise Mart of Chicago. Mr. Henry Gordon, who has charge of all the dining rooms at the Mart, was the speaker of the evening.

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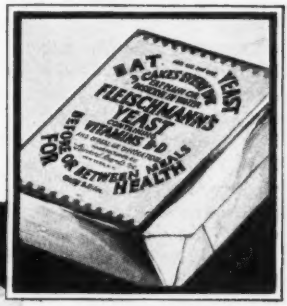

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Following the dinner and program, the group was conducted through the Mart Restaurants.

The Colorado Dietetic Association, which was organized a little over a year ago with Inez Broyles acting as chairman, is rapidly growing in membership. The following officers were recently elected: President, Margaret Worner, Modern Woodmen of America Hospital, Woodmen; Vice-President, Helen Bowe, Presbyterian Hospital, Denver; and Secretary and Treasurer, Mrs. Elvia V. Gauss, Denver. During the past year the Association has visited several hospitals in Denver, and also had a joint meeting with the Colorado Hospital Association.

Hannah Hodvedt, formerly of Memorial Hospital, Cheyenne, Wyoming, is now dietitian at Corwin Hospital, Pueblo, Colorado.

Ruth E. Schmidt has been transferred from State Hospital, Pueblo, to Memorial Hospital, Cheyenne, Wyoming.

Margaret Mooney, formerly of Bronson Methodist Hospital, Kalamazoo, Michigan, is dietitian at State Hospital, Pueblo.

Mrs. Florence Mann, formerly of Fitzimmons Hospital, Denver, was married to Dr. McCuskey. They are living in Philadelphia.

The District of Columbia Dietetic Association Executive Committee entertained Anna Boller and her mother at dinner at the Dodge Hotel on September 3rd.

Members of the District of Columbia Dietetic Association who attended the American Dietetic Association Convention in Toronto included: Grace Bulman, Chief of the United States Veterans Bureau; Agnes Kacerovsky of Mt. Alto Hospital, U. S. V. Service; Grace Hunter, Chief Dietitian, Walter Reed General Hospital; Blanche Fickle, Gallinger Municipal Hospital; Ruth Atwater of the National Canners Association; Clyde Schuman, Food Director of the American Red Cross and Lurena Perrine, Garfield Hospital.

At the September meeting Blanche Fickle gave a report on the Affiliation Dinner; Agnes Kacerovsky on the tour made through Toronto General Hospital; Ruth Atwater on the newly elected American Dietetic Association officers, and her visit to the hotel kitchens. Lurena Perrine gave us a very interesting report on the social life of the Convention.

Owing to the illness of her mother, Grace Bulman has resigned as President of the District of Columbia Dietetic Association, and Lurena Perrine has been elected President. Blanche Fickle has been elected Secretary in place of Miss Perrine, who formerly held the position of Secretary.

The October meeting was held at the Hay-Adams House. Alice Webster of Woodward and Lothrop's tea room, gave a short talk on food control and Mrs. Marion H. Jones of the Dodge Hotel gave a report on the National Hotel Convention at Cleveland.

The Kansas City Dietetic Association. R. Sevilla Boice, of Washington, Iowa, was appointed assistant dietitian at the Kansas City General Hospital. Miss Boice is a graduate of Iowa State College.

The New York Dietetic Association had a Japanese dinner at Miyako's in October. Mary Northrop then spoke on the different hospitals she visited this past summer in England and Budapest, and the conditions existing in them.

The Oregon Dietetic Association held its first fall meeting in September, at which time plans were made for subsequent meetings. The October meeting was held at the Good Samaritan Hospital Nurses' Home. Fifteen members took part in the open discussion which comprised the main part of the meeting.

The Saint Louis Dietetic Association elected the following officers for the coming year: President, Ruth Mira Kahn, Washington University Dispensary; Vice-President, Marie Hoff, St. John's Hospital; Secretary, Mabel Unger, Director of School Cafeterias; and Treasurer, Florence Love, City Hospital.

Ruth Cooley was married in October to Richard Baumhof at Dubuque, Iowa. They will make their home in University City.

Bethel Curry has succeeded Miss Cooley as chief dietitian at the Jewish Hospital.

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Lila Davis, recent student at Michael Reese Hospital, has accepted a position as assistant at Jewish Hospital.

Mary Elene Stewart has succeeded Mary Abbie Sherwood as dietitian at Bethesda Hospital.

The Syracuse Dietetic Association was organized in September. Dietitians from towns and cities near Syracuse were invited to join.

Members for whom the business office has no correct addresses: Mildred Boley, formerly 539 W. 112th St., New York City; Mary Dunning, formerly 705 N. Michigan Ave., Chicago; Beulah Mae De Lano, formerly State Hospital, Meridan, Mississippi; Marion A. Dammeyer, formerly 1441 Harvard St. N. W., Washington, D. C.; Fern L. Clark, formerly John Sealey Hospital, Galveston, Texas; Mrs. Louise Marty Boies, Waltham Training Hospital, Waltham, Mass.; Minnie L. Dames, formerly, Freedmen's Hospital, Sixth and Bryant Sts. Washington; Margaret Frances Wagner, formerly 51 Pembroke Ave., Buffalo, N. Y.; Mrs. Malla Payne Tabb, formerly Canton, Alabama; Helen B. Peterson, formerly Whittier Hall, Columbia University, New York City; Mrs. Ouida Moore Waltman, formerly Columbia, Louisiana. Miss Lenfest, the Business Manager, will appreciate any information regarding the correct addresses of the above members.

WHO'S WHO IN THIS ISSUE

ANNA E. BOLLER was Executive Secretary of the Association until her resignation in March, 1927, and President of the Association from 1928 to 1930. She is now chairman of the Affiliation and Nominating Committees. The following tribute, paid to Miss Boller's work for the Association, appeared in the June, 1927, issue of the JOURNAL, and is indicative of her continued relations with the Association. "It was Miss Boller who made for us our first investment, who tided us over many lean seasons. It was she who put our affairs on a real, business-like basis. We ought to print some of her annual reports and study them; she read them so modestly that few of us realized the steady advance they indicated. She bore our occasional wonderings why she did not do the work of four women instead of the work of only three; she endured our lethargic support when she should have had our vigorous help. We hope she may long continue to show us . . . . how a professional society should be served by its members." For many years Miss Boller has been active in clinical work at the Central Free Dispensary of Rush Medical College, Chicago. Among her other activities, she is consultant dietitian for the John W. Sexton Company, wholesale grocers, Editor, Department of Dietetics, *Modern Hospital*, and is an extensive contributor to other publications in the hospital field of special interest to dietitians.

T. SWANN HARDING was engaged for six years in nutrition work in the United States Bureau of Dairy Industry, and for eighteen years a research chemist in laboratory work. He is now Editor of Scientific Publications of the United States Department of Agriculture. He is a member of the American Medical Editors and Authors Association, and is Associate Editor of *American Medicine*. Mr. Harding has written widely on nutrition. He is the author of "Fads, Frauds and Physicians," recently published by the Dial Press.

LAURA COMSTOCK is Chairman of the Social Service Section of the American Dietetic Association. She is widely known for her work as nutrition advisor in the Medical Department of the Eastman Kodak Company. This work was organized in 1922.

WALTER S. MCCLELLAN received his medical degree at the Harvard Medical School. In 1926–27 he was National research fellow in medicine, under Professor Graham Lusk. Since 1927 he has served as research fellow, Russell Sage Institute of Pathology, as instructor in medicine, Cornell Medical School and as adjunct assistant visiting physician, Bellevue Hospital, New York City. His work has been entirely in the field of metabolism and nutrition.

MAJOR EDGAR ERSKINE HUME has had many years of experience as a sanitarian. During the World War he was in charge of the U. S. Army hospitals in Italy and later directed the campaign in Serbia against typhus fever. For the past four years he has been Medical Inspector of Fort Benning, Georgia, the largest post in the United States Army. Among his writings are: Max von Pettenkofer, A Review of His Theory of the Etiology of Cholera, Typhoid Fever and Other Intestinal Diseases; Summer Diarrheas in Infants; Pure Water for Troops in the Field; Louis Pasteur, the Father of Preventive Medicine; American Relief Work in Serbia; Military Operations on the Italian Front in 1918; Jamica Ginger Paralysis; etc. He holds the degree of Doctor of Medicine and Doctor of Public Health from Johns Hopkins, and is a graduate of the School of Public Health of Harvard University, the Massachusetts Institute of Technology, the Harvard School of Tropical Medicine and of other institutions.

FAYE BURNETT, A.B., M.S., is a graduate of Southern Methodist College, Dallas, Texas, and was Y. W. C. A. secretary in charge of Girl Reserve work in Hot Springs, Arkansas, and Dallas, Texas. She served as nutrition interne and obtained a Master of Science degree in the Department of Nutrition, University Hospitals, University of Iowa Medical School. At present Miss Burnett is dietitian in the maternity service, Presbyterian Hospital, New York City.

EDNA SHALLA, A.B., M.S., is a graduate of the State University of Iowa, and received her master's degree under Dr. Wheeler in the Department of Nutrition of the University Hospitals, University of Iowa Medical School. She took advanced study in institutional management at the University of Chicago, was assistant dietitian, and is now administrative dietitian at the University Hospitals.

HELEN E. GILSON is chairman of the Administration Section of the American Dietetic Association and chief dietitian of the Pennsylvania Hospital, Philadelphia. She is a past president of the Dietitians Association of Philadelphia, and author of the booklet, "The Perfect Tray," published by the Onondaga Pottery Company.

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